Medical Lib.

DEC 11 1931
This Issue Exceeds 92,500 Copies

# THE JOURNAL

OF THE

## American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 97, No. 24 | 535 North Dearborn Street, CHICAGO, ILL. | DECEMBER 12, 1931

### CONTENTS AND SUBJECT INDEX

**Neuropsychiatric Counterfeits of Organic Visceral Disease.** T. H. Weisenburg, M.D.; J. C. Yaskin, M.D., Philadelphia, and Henry Pleasants, Jr., M.D., West Chester, Pa. .....1751
Discussed by Drs. Wolfsohn, Wilson, Pleasants and Yaskin.

**Roentgen Treatment of Agranulocytosis.** Albert E. Taussig, M.D., and Paul C. Schnoebelen, M.D., St. Louis.....1757

**Aberrant Thyroid.** Richard B. Cattell, M.D., Boston.....1761
Discussed by Drs. Roeder, Parsons, Lahey, Dinsmore, Wohl and Muskat.

**Suprapubic Prostatectomy with Closure of the Bladder.** Alexander H. Peacock, M.D., Seattle.....1768

**Sacral Block Anesthesia in Perineal Prostatectomy: Its Infallibility When Accurately Administered.** Edwin Davis, M.D., Omaha...1771
Papers of Drs. Lowsley and Kirwin, T. M. Davis, Peacock, and Edwin Davis discussed by Drs. Randall, Nesbit, Bumpus, Lowsley, Morrissey, Crowell, Goldstein, Livermore, Folsom, Timberlake, Michel, Pugh, Edwin Davis, T. M. Davis, Kirwin and Peacock.

**Accessory Sinus Infection in Suspected Pulmonary Tuberculosis.** John D. Osmond, M.D., Cleveland .....1778
Discussed by Drs. Pancoast, Le Wald, Allen and Osmond.

**Effects of Spinal Anesthetics on the Spinal Cord and Its Membranes.** Loyal Davis, M.D.; Hale Haven, M.D.; J. H. Givens, M.D., and John Emmett, M.D., Chicago.....1781

**Common Anomalies of the Duodenum and the Colon: Result of Eight Years' Combined Clinical and Roentgen Study.** John L. Kantor, M.D., New York.....1785

**Grippal Infections.** C. L. Andrews, M.D., Atlantic City, N. J.....1791
Discussed by Drs. Thayer, McCrae, Rowntree, Salzer, Taylor, Atwood and Andrews.

**Experimental Shock.** Alfred Blalock, M.D.; J. W. Beard, M.D., and G. S. Johnson, M.D., Nashville, Tenn. .....1794
Discussed by Drs. Markowitz, Bothe and Blalock.

**CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS**

**Age Incidence of Carcinoma of Cervix.** E. F. Daily, M.D., Baltimore .....1798

**COMMITTEE ON FOODS** 1798

**EDITORIALS**

**Blood Disturbances and Thrombogenesis from Intravenous Injections of Dextrose Solutions**..1800

**The Geneva Convention of 1931**.1801

**Football Fatalities**.....1802

**Panaceas for the Common Cold**.1802

**CURRENT COMMENT**

**The Trend of Advertising**.....1803

**Insulin—A Protein**.....1803

(Subject Index on next page)

**ASSOCIATION NEWS** 1804

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.
Copyright, 1931, by the American Medical Association.
NEXT ANNUAL SESSION, NEW ORLEANS, LA., May 9-13, 1932


# Books as Christmas Gifts

## SAUNDERS' PLAN MAKES SHOPPING EASY

Of course, you wish to remember your professional friends at Christmas—but the difficulty is in finding time to select the gifts. We believe our plan, outlined below, will save your time and assure gifts that will be highly acceptable to your friends:

Send us the names and addresses of those friends whom you wish to receive books as gifts, indicating the Saunders book you wish sent to each. We will then send the books direct, each with a little note saying the gift is from you; or, if you wish, we will enclose your card. The amount, of course, will be charged to your account.

In this way you eliminate all shopping difficulties.

*A good book which offers real service, is always a most acceptable and delightful Christmas gift for a physician*

**22 SAUNDERS BOOKS for GIFTS on PAGE 3**

# SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.


"Accommodative phosphene" of Czermak..1822
Acne rosacea, keratoconjunctivitis from..ab-1842
Advertising of nostrums, prohibition.....1813
trend of .....E-1803
Albuminuria and blood extravasation...ab-1834
Amenorrhea, hormonal treatment.....ab-1841
American Association for the Advancement of Science .....1807
Ametropic children, school for.....1814
Anemia, pernicious-like, of pregnancy.ab-1841
secondary, iron citrates in.....1821
tryptophan and histidine for.....ab-1834
Anesthesia, electrocardiographic study....1822
nupercaine .....ab-1842
sacral block, in prostatectomy.....*1771
spinal, effects on spinal cord.....*1781
Angina, agranulocytic, roentgen treatment.*1757
Arteriosclerosis, retinal changes in.....ab-1828
**Association News** .....1804
Asthma, intrapulmonary treatment.....ab-1838
Backache, low, in gynecologic practice..ab-1834
Bacteriophage, effect on typhoid bacillus..1813
Beverages, new law on.....1812
Bile Ducts, tumor .....1813
Bilirubin, methylene blue test for.....ab-1840
Bladder, closure of, in suprapubic prostatectomy .....*1768
microbic flora modified in treatment of hemorrhagic cystitis .....ab-1836
sarcoma, in children .....ab-1832
syphilis .....ab-1840
Blepharitis from yellow mercuric oxide.ab-1828
Blood, circulation, early references to....1814
extravasation and albuminuria.....ab-1834
pressure, high, essential, retinal changes in .....ab-1828
sugar, differential venosocapillary....ab-1837
transfusion, increasing importance.....1808
viscosity in normal Filipinos.....ab-1833
**Book Notices** .....1824
**Books Received**.....**Adv. page 34**
Brain injury .....ab-1837
tumors in children .....1810
Branchial cysts and fistulas.....ab-1833
Breast abscess, lysate-vaccines in.....ab-1836
**Bureau of Investigation**.....1817
Bursitis, acute, iron cacodylate for.....ab-1833
Calcium metabolism and parathyroids...ab-1842
phosphorus values of foods.....1821
phosphorus, retention ratio.....ab-1827
Cancer, hereditary, in man.....1822
Carbuncles, treatment .....ab-1838
Cardiology .....ab-1832
Cardiovascular disorders, postfebrile.....*1791
Cecum, high and low.....*1788
Children, debilitated, fresh air and sunshine for .....1809
Chompret, Dr., honored.....1810
Cold, common, panaceas for.....E-1802
Colon, redundant .....*1787
**Committee on Foods**.....1798
Conjunctivitis from yellow mercuric oxide. .....ab-1828
**Council on Medical Education**.....1823
Cranium injury, treatment.....ab-1837
Cystadenoma, papillary .....*1761
Deaf, care of .....1811
**Deaths** .....1815
Deutsche Gesellschaft für Kinderheilkunde.1811
Dextrose solutions intravenously, blood disturbances and thrombogenesis from..E-1800
Diabetes in children, basal metabolism in.ab-1827
in children, infections in.....ab-1829
treatment of tuberculous with.....ab-1840
Diatheses, hemorrhagic, blood protein in.ab-1839
Diphtheria immunization of children.....1811
toxoid, hypersensitiveness to.....1821
Disease: as an accident.....Ml-1825
Duodenum, common anomalies.....*1785
Dystrophia adiposogenitalis.....1821
Edema, nature and treatment.....ab-1841
Empyema of ureteral stump.....ab-1831
acute, mortality of operation for.....ab-1829
Endocarditis, acute, prognosis.....ab-1827
Eosinophils, chamber count of.....ab-1839
Epidemics, news of.....1807
Esophagus, perforation .....ab-1842
Evidence: witness, expert; opinion invading province of jury.....Ml-1826
witness, expert; qualifications to testify as to firearms.....Ml-1826
witness; insanity as affecting competency .....Ml-1826
Exhibit on pure air and clean streets.....1806
Eyestrain in school children.....1807
Femur, acute osteomyelitis involving cornea.1813
Fevers, alimentary, in infants.....1810
certain, differential diagnosis of.....ab-1827
Fibroma, bleeding nasopharyngeal.....ab-1837
Films, medical .....1806
Fistulas, branchial cysts and.....ab-1833
Food, adulteration, Roumania.....1812
Football fatalities .....E-1802
**Foreign Letters**.....1808
Gallbladder disease, gastro-intestinal hemorrhage in .....ab-1832
Gastro-intestinal disorders, neuropsychiatric .....*1753
Genito-urinary disease, neuropsychiatric...*1753
Goiter, Exophthalmic .....ab-1834
**Government Services** .....1808
Grippal infections, postfebrile cardiovascular disorders .....*1791
Halsted Clinic .....1805
Harvey Lecture, third.....1806
Health, improved, of school child.....1809
Heart disease, arteriosclerotic, retinal changes in .....ab-1828
disease in rheumatic fever.....ab-1831
disease, neuropsychiatric counterfeits....*1751
early references to .....1814
electrocardiograph in anesthesia.....1822
muscle weakness, postfebrile .....*1791
pain .....ab-1831
pseudovalves .....ab-1837
valves, organic leakage, postfebrile....*1791
Hematologic Society, created.....1810
Hernia, diaphragmatic .....ab-1830
Herter Lectures given by Dr. Greenwood..1805
Hormones and menstrual disorders....ab-1841
Hospitals: for profit; liability for injury to special nurse .....Ml-1826
federal, increase opposed.....1807
Irish, financing of, by sweepstakes.....1809
opens unit for middle man.....1806
Infections in diabetic children.....ab-1829
Influenza vs. grippal infections .....*1791
bacillus, purulent infections with.....ab-1842
Insanity: state asylum; liability for crime of released inmate .....Ml-1826
Institute of Marine Biology.....1813
Insulin—a protein .....E-1803
International Council of Scientific Societies .....1810
Intestines, differential diagnosis of worms.1820
Iron cacodylate for acute bursitis.....ab-1833
citrates in secondary anemia.....1821
Jennings, G. A., impostor.....1807
Keratoconjunctivitis from acne rosacea..ab-1842
Kidney, injury of tubules from dextrose intravenously .....E-1800
insufficiency in prostatic hypertrophy.ab-1836
Knee, infection with B. Pfeiffer.....ab-1842
Laguna, Andrés .....1814
Laryngectomy, total, voice and speech after .....ab-1829
Left-handedness and brain centers.....1822
Leukocytes vs. hemolytic streptococci....ab-1833
Leukosis, chicken, new strain.....ab-1841
Lip, upper, sympathicotonic symptom...ab-1841
Liver diseases, differential venosocapillary glycemia in .....ab-1837
Lobera de Avila, Luis.....1814
Lungs, disorders of psychogenic origin...*1752
postoperative atelectasis and collateral respiration .....ab-1829
reflex relation to other viscera.....ab-1830
Lymph Glands, mediastinal, tuberculosis..1813
Malaria and anophelism .....1813
differential diagnosis .....ab-1827
therapeutic, dangers .....1814
**Marriages** .....1815
Marti, Francisco Matias.....1814
Medical Practice Acts: licenses, revocation; abortion .....Ml-1825
Medicine, state, Spain.....1815
**Medicolegal** .....1825
**Meetings, Coming Meetings**.....1826
Meningitis at federal penitentiary.....1804
Menopause symptoms, ovarian extract and sex hormones in .....1822
Menstruation disorders .....ab-1827
disorders as affected by hormones.....ab-1841
Milk, calcium-phosphorus values.....1821
Mitral stenosis .....ab-1833
Myelotomy in syringomyelia.....ab-1832
"Myoma, myoblast" .....ab-1842
Narcotics, limiting manufacture.....E-1801
Nasopharynx, bleeding fibroma.....ab-1837
Negro, differentiating white child from....1822
Nephritis .....ab-1829
Nerves, peripheral, surgical semeiology.ab-1837
vagus, stomach innervation.....ab-1835
Neuritis, optic, acute myelitis with....ab-1837
Neuropsychiatric counterfeits of organic visceral disease .....*1751
**News** .....1804
Nose, accessory sinus infection in suspected pulmonary tuberculosis .....*1778
plastic surgery .....ab-1829
Nupercaine, acute intoxication.....ab-1842
anesthesia .....ab-1842
Osler Clinic .....1805
Osteomyelitis, acute, of femur.....1813
Ovaltine .....1798
Oxycephaly .....ab-1828
Oxygen tents .....1822
Paralysis, General, of insane, malaria treatment .....1874
Paraplegia, acute myelitis with optic neuritis .....ab-1837
Parathyroids and calcium metabolism...ab-1842
Parkinson's Disease, stramonium in.....ab-1832
Paronychia, surgical drainage.....1821
Pediatricians, Congress of.....1810
Peptic Ulcer, extrabulbar, of duodenum....1813
postoperative, treatment .....ab-1835
Peritonitis, purulent .....1813
Phosphorus: calcium retention ratio....ab-1827
calcium values of foods.....1821
Pillow used for low-back pain.....ab-1834
Plague, serum therapy .....ab-1835
Pleura effusions, tubercle bacilli in.....1810
fluids, formation, absorption.....ab-1830
Pneumonoconiosis, review .....ab-1828
Pregnancy in double uterus.....1820
mineral metabolism in .....ab-1842
pernicious-like anemia of .....ab-1841
urinary tract diseases in.....ab-1831
Prostate hypertrophy, renal insufficiency in .....ab-1836
Prostatectomy, mortality rate in.....*1774
perineal, sacral block anesthesia in...*1771
suprapubic, with closure of bladder.....*1768
Psychiatric clinics at municipal hospitals...1808
Puerperal Infection, early treatment....ab-1834
lysate-vaccines in .....ab-1836
**Queries and Minor Notes**.....1820
**Radio Program** .....1804
Radium treatment in city hospitals.....1808
Reflex and toxic vascular shock.....ab-1838
relation of lungs to other viscera.....ab-1830
Respiration, collateral, and postoperative atelectasis .....ab-1829
movements in formation and absorption of pleural fluids .....ab-1830
Retina changes in arteriosclerotic heart disease and essential hypertension....ab-1828
Retinitis pigmentosa, sex hormone for...ab-1839
Rheumatic Fever, heart disease in.....ab-1831
St. Louis Medical Society Golden Jubilee..1806
Sciatic syndrome .....*1755
Scouring powder, silicosis from.....ab-1842
Servetus, Michael .....1814
Sexuality in the child.....1811
Shock, production and treatment.....*1794
vascular, toxic, and reflex.....ab-1838
Silicosis in women.....ab-1842
Simons, Edwin J., honored.....1805
Socialization of medical services, Spain.....1815
Società medico-chirurgica di Pavia.....1813
Société d'hématologie .....1810
**Society Proceedings** .....1826
Spinal Cord, acute myelitis with optic neuritis .....ab-1837
effects of spinal anesthetics.....*1781
Spinal Puncture, lumbar, fatality.....ab-1842
Spleen, contractility .....1813
extracts vs. tumor resistance.....ab-1841
**State Board Examinations**.....1823
Stomach innervation .....ab-1835
acidity of juice during secretion.....ab-1835
Stramonium in Parkinson's disease.....ab-1832
Streptococci, hemolytic, effect on leukocytes .....ab-1833
Suicide, causes and prevention.....1809
Syringomyelia, myelotomy in.....ab-1832
Tachycardia .....ab-1832
Tax, bachelor and spinster.....1812
Thrombo-angiitis obliterans as familial disease .....ab-1839
Thrombogenesis and dextrose intravenously .....E-1800
Thyroid, aberrant .....*1761
Tibia, callus formations on, without fracture .....ab-1838
**Tonics and Sedatives** .....**Adv. page 28**
Toxicosis, dextrose by intravenous drip method in .....ab-1827
Trachoma in Roumania.....1812
Trauma: sarcoma of bone attributed to.Ml-1825
Trichinosis from bear meat.....1804
Tubercle Bacilli in tuberculous pleural effusions .....1810
Tuberculosis, differential diagnosis.....ab-1827
infection, exposure to, in childhood..ab-1842
pulmonary, accessory sinus infection in suspected .....*1778
treatment of tuberculous diabetics....ab-1840
Tulane University, changes at.....1805
Tularemia, differential diagnosis.....ab-1827
Tumor resistance, analysis.....ab-1840; ab-1841
Typhoid bacillus vs. bacteriophage.....1813
differential diagnosis .....ab-1827
Typhus, differential diagnosis.....ab-1827
Undulant fever, differential diagnosis..ab-1827
Ureter meatotomy .....ab-1831
stump, empyema of.....ab-1831
Urinary Tract diseases in pregnancy....ab-1831
Urine, bilirubin, methylene blue test for.ab-1840
Uterus cancer, age incidence.....*1798
hemorrhage .....ab-1827
pregnancy in double uterus.....1820
Viscera, reflex relation of lungs to.....ab-1830
disease, organic, neuropsychiatric counterfeits .....*1751
Vitamins, avitaminoses in infants.....1810
A and D, value in preventing colds....E-1802
Vivisection ordinance approved, Chicago...1805
Wrist, ganglion (tumor of).....1822

# The Journal of the American Medical Association

**Published Under the Auspices of the Board of Trustees**

VOL. 97, No. 24 CHICAGO, ILLINOIS DECEMBER 12, 1931


## NEUROPSYCHIATRIC COUNTERFEITS OF ORGANIC VISCERAL DISEASE *


T. H. WEISENBURG, M.D.

J. C. YASKIN, M.D.

PHILADELPHIA

AND

HENRY PLEASANTS, JR., M.D.

WEST CHESTER, PA.


Visceral disease may be masked by a variety of neuropsychiatric manifestations. Patients may present themselves with pains referred to the extremities and the trunk, especially with sciaticas and backaches, bearing the earmarks of nerve or cord involvement, but which are due to underlying visceral disease. More frequently there are patients referred as "psychoneurotic" in whom the outstanding symptoms are emotional and whose numerous bizarre and variable complaints cannot be explained by objective organic phenomena. Even more commonly a combination of peripheral pains and psychoneurotic manifestations are encountered forming a bewildering clinical picture difficult to disentangle. Psychotic states may conceal underlying visceral disease and may be the earliest manifestation of visceral disease, as in the four cases of pancreatic tumors reported by one of us.[1]

The following are illustrative cases in which patients with unrecognized somatic disease were referred to the neuropsychiatric service as presenting neurologic conditions. These cases were divided for descriptive purposes into cardiac, pulmonary, gastro-intestinal, genito-urinary and sciatic groups.

### THE CARDIAC GROUP

That psychic factors, especially emotional, should influence cardiac action is not surprising when it is borne in mind that, like the gastro-intestinal tract, this organ has a rich sympathetic and parasympathetic innervation and that the vegetative system is under the control of the nervous system. In addition, Cannon [2] has shown that under the influence of emotions there is a chemical alteration in the epinephrine content which is particularly prone to influence the accelerators of the heart. Cardiac disturbances of emotional origin are therefore of great frequency, and neurocirculatory asthenia, a disordered heart action of the soldier, is a common symptom. Parenthetically, cardiac neuroses are often a result of careless, sometimes casual, remarks on the part of the examining physician, a fact worth while remembering, for it is much easier to create than to cure these "cardiac" cases.

On the other hand, cardiac diseases often have psychic components which should be borne in mind. The occurrence of transient and more or less lasting psychotic episodes (mood changes, suspicions, hallucinations) in the course of heart disease was studied by Head,[3] who attributes these symptoms to pain reflected from the diseased viscus. Cardiogenic psychoses with a variety of psychotic pictures have been described by Riesman,[4] who attributes the psychoses to a variety of causes including the psychopathic make-up of the patient, toxemia of the kidney, acidosis, drugs especially digitalis, and disturbances of cerebral circulation.

Behavior disorders attributable to restricted activity, imposed by cardiac disease in adults and especially in children, are of interest and are discussed by Foster.[5] Psychoneurotic complaints may be readily conceded to a frank cardiac case as being at least distantly related to cardiac dysfunction. By frank cardiac cases we mean patients with valvular lesions, disturbances of rate and rhythm, blood pressure changes, mild evidences of decompensation and the like. The situation is entirely different with the so-called myocarditides. Here the evidences of cardiac disease, even in the hand of experienced internists, are slim and often doubtful. The vague "anginoid" pains over the anterior chest wall and in the arms are much more conspicuous than the objective signs. Often these pains are only a small portion of the pains, aches and mood disturbances which dominate the picture. Thus these patients, with the condition formerly called "pseudo-angina pectoris," become psychoneurotic and are referred to the neuropsychiatrists for psychotherapy.

CASE 1.—J. F., a man, aged 56, a merchant, seen, Oct. 14, 1924, complained of severe cramplike pain in both arms, forearms and hands. These pains commenced several hours previously, following a quarrel with a son. The family history and past medical history were negative; the patient had typhoid in his youth, smoked cigars and a pipe in moderation, and indulged mildly in alcohol. He was "highly strung" but there was no history of a "nervous breakdown."

The patient was somewhat short and slim, and presented no evidences of somatic or neurologic disease. His pulse rate was 76, the blood pressure was 140 systolic and 105 diastolic, the heart was not enlarged, no murmurs were audible, and the heart sounds were good. Neurologic examination revealed no disturbances in motor, reflex, synergic or sensory control.


* From the Department of Neurology, Graduate School of Medicine, University of Pennsylvania, and the Orthopedic Hospital and Infirmary for Nervous Diseases.



* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.


1. Yaskin, J. C.: Nervous Symptoms as Earliest Manifestations of Carcinoma of the Pancreas, J. A. M. A. **96**: 1664 (May 16) 1931.

2. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1929, pp. 1-192.

3. Head, Henry: Certain Mental Changes that Accompany Visceral Disease, Goulstonian Lectures for 1901, Part III, Brain **24**: 345, 1901.

4. Riesman, David: Acute Psychoses Arising During the Course of Heart Disease, Am. J. M. Sc. **161**: 157 (Feb.) 1921.

5. Foster, N. B.: Psychic Factors in the Course of Cardiac Disease, J. A. M. A. **89**: 1017 (Sept. 24) 1927.

There was no tenderness over the nerve trunks. He was restless, unable to remain in bed and screamed and cried. Bromides and barbital were administered, and the following morning he returned to work.

Within a few days there was a recurrence of pain in both extremities which also yielded to sedative agents. Within a couple of weeks, however, the patient complained of dyspnea and precordial oppression. About November 1 he developed a bilateral hydrothorax, which was tapped, affording the patient considerable relief. November 4, when the nurse returned after the absence of a few minutes, the patient was dead.

The character of the subjective manifestations as well as the marked neurotic phenomena certainly justified regarding this patient as psychoneurotic. In retrospect, the pains and emotional disturbances masked a pronounced case of myocardial degeneration.

CASE 2.—A. S., a woman, aged 52, referred in June, 1929, complained of general weakness and nervousness and inability to walk because of weakness and pain in the back. The family history and past medical history were irrelevent. Although "highly strung," she had never had a nervous breakdown. Her present illness began several months previously with generalized pain and nervousness, especially pain in the eyes. In February, 1929, she was studied for two weeks in a teaching hospital, where the investigations failed to reveal organic disease. In the past few weeks her condition became much worse. She was unable to walk about because of weakness in the back. When seen at her home, the patient looked thin, pale, anxious and unwilling to move out of bed. The internist who referred the patient gave the assurance that his studies and those made in the hospital excluded somatic disease. Neurologic examination revealed a pseudoptosis of the left upper eyelid and inability to raise the right arm because of pain in the shoulder. She refused to leave the bed or even to sit up. A psychologic examination revealed that she was distressed over two unmarried daughters who were rather promiscuous in their mode of living. She cried and was anxious and depressed. The patient was hypnotized without difficulty, and in ten minutes walked out of bed much relieved. She returned several times for treatment, showing improvement, with the exception of "fainting spells" with partial loss of consciousness, which were attributed to emotional upsets.

July 2, the patient suffered a fainting spell. She was motionless, with an ashen gray face and blue lips and finger nails. Her extremities were cold, she perspired profusely, the pulse rate was rapid and feeble, and the heart sounds were poor. There was no pulmonary edema. She rallied with digitalis and caffeine and was admitted to the Graduate Hospital. She had several similar attacks while in the hospital. During one of them the blood sugar rose to 260 mg. per hundred cubic centimeters, while between attacks the blood sugar was under 100. She died, July 5, during one of these attacks. The cause of death was assigned to coronary occlusion.

The psychogenic background, the bizarreness of the symptoms, the absence of objective signs after intensive study and the favorable reaction to hypnosis all favored a diagnosis of psychoneurosis. However, the basic manifestations were undoubtedly attributable to myocarditis.

### PULMONARY GROUP

Pulmonary disturbances of psychogenic origin are not nearly as common as those of the gastro-intestinal or cardiac systems. Nevertheless, cough, disturbance of rate and rhythm of respiration, and even asthma may be of functional origin. The fear of tuberculosis in some cases is one of the commonest manifestations of psychoneurosis. Nevertheless, psychogenic causes of pulmonary manifestations are relatively rare. Whether they may be due to relatively poorer innervation by the vegetative system and relatively richer somatic innervation (abdominal walls, intercostal muscles, parietal pleura) in comparison to other viscera is difficult to state and requires further investigation.

That pulmonary disease, especially tuberculosis, may cause mental symptoms is well known. Head [3] ascribes it in part to reflex pain referred from the diseased viscus and partly to the fever, loss of weight and anemia. The general clinical conception is that the mental symptoms in these cases are toxic in origin. Head points out that lesions in the upper part of the chest are not as likely to cause mental changes as lesions in the basal lobe. We feel that this is not due so much to the reflected pain from the lower lobe, as claimed by Head, as to the fact that when tuberculosis invades the lower lobe the case is usually more advanced and the patient more toxic.

There are cases in which neuropsychiatric manifestations mask underlying pulmonary pathologic changes. Among these may be mentioned early pulmonary tuberculosis especially in late adolescence, and carcinomatosis.

CASE 3.—A woman, aged 39, seen, Feb. 1, 1928, had developed, eight years previous to admission to the Orthopedic Hospital, a pelvic peritonitis two months after the birth of a second child, following which there was a removal of her uterus, tubes and ovaries with the establishment of a complete surgical menopause. Following this she began to have attacks of nervous exhaustion, which were ascribed to the consequences of the operation and to certain domestic difficulties. Three months prior to her admission, the patient was in an automobile accident in which she suffered a concussion following a blow on the head. At the time of the accident, she remembered taking a deep breath, and following her recovery from the concussion for a period of three months she complained of difficulty in getting her breath and of pains across her shoulders. This was followed by severe crying spells, considerable mental depression and general exhaustion, in which the patient felt unable to do her usual housework. Her respiratory difficulties were much worse whenever she became emotionally upset. In addition, she complained of a gripping feeling in her throat and she had a tendency to cough to get rid of it. She had to use two pillows instead of one when lying in bed.

On admission she had a constant dull aching pain over the scapula. At times this became more severe and would shoot and radiate down the left flank and around the chest to the left breast. On admission to the hospital this was her chief complaint, and it was thought that all her symptoms were of a psychoneurotic character and had been present a long time but had been aggravated by the automobile accident. After her admission the pains increased and in addition she began to complain of nausea and vomiting. While under observation she developed a weakness and numbness in the right upper limb, but physical examination did not denote anything. Later on, a roentgen examination showed that she had a primary carcinoma of the lung. Following this she developed an increasing weakness in the right side, which developed into a right hemiplegia. This was followed by generalized convulsions, limited mostly to the right side, and the patient finally died of multiple carcinomas of the brain.

The diagnosis in this case was particularly difficult in the beginning because of the history of the old neurosis with the more recent one of trauma following an automobile accident in which the question of compensation entered. The medical man who referred her was undoubtedly swayed by this history and on her admission to the hospital we also felt that the case might be one of traumatic neurosis. It was, however, the character of the pains, which were of a rootlike variety, that first directed our attention to the possibility of the presence of a spinal cord involvement. Roentgen examination disclosed the presence of the carcinoma and the later symptoms were so outstanding that there was no doubt left as to the proper diagnosis.

CASE 4.—E. B., a woman, aged 24, a trained nurse, who had graduated two years prior to observation, complained of general nervousness, inability to sleep, depression and slight loss of weight. She was easily exhausted. She had been nursing a psychasthenic patient and these symptoms developed after she had been on duty for about six months. She gave up the case because she felt that it was too much for her and ascribed all her symptoms to a neurosis brought about by the mental and physical fatigue attendant on the nursing of this difficult patient. General examination was entirely negative. No examination was made of the chest. It was obvious that the patient was psychoneurotic and we agreed with the idea that all she needed was rest; she was sent home to recuperate. The patient came back in about three months feeling much worse. She had lost considerable weight. She began to complain of night sweats, and examination showed the general symptoms of an early tuberculosis. This was confirmed by a roentgenogram and an examination of the chest.

This is a typical example of how a neurologist can slip up in a diagnosis of an early tuberculosis by assuming that the neurotic symptoms are of a generalized character. The later history of this patient, who was put on a suitable treatment, showed the complete disappearance of the symptomatology as the condition of the chest improved.

### GASTRO-INTESTINAL GROUP

That gastro-intestinal disturbances may be purely psychogenic in origin is a common experience, and "nervous dyspepsia" has been handed down from ancient times. The gastro-intestinal tract, by reason of its innervation by the vegetative nervous system, remains out of the sphere of consciousness as long as there is no disturbance in this long tract or in the various pathways connected with the involuntary nervous system. But the functions of this system are readily influenced by the psychic processes as shown by the experimental work of Cannon [2] and by the clinical observations of Alvarez,[6] Ziegler,[7] McLester,[8] and many others. The digestive disturbances in relation to disease of the spinal cord, as in tabes and transverse myelitis, are well recognized and the close connection with the diencephalon, as in epidemic encephalitis, is at least debatable.[9] Diseases of the autonomic system itself (autonomic unbalance) are regarded as a predisposing factor in organic gastro-intestinal disease such as peptic ulcer and cardiospasm. On the other hand, the improved methods and more intensive studies in gastro-enterology in recent years have demonstrated that many cases of "nervous dyspepsia" are organic in nature. It is found that many mild lesions or slight secretory and motor disturbances give rise to a variety of neuropsychiatric symptoms which mask the underlying pathologic changes. That marked gastro-intestinal disturbances give rise to reflected pain and other disturbances was shown by Head,[10] who demonstrated that the pain reflected to the cutaneous surface from diseased viscera was to a large extent responsible for the mental symptoms observed in some cases, and that pain reflected to the abdomen was more closely associated with psychic disturbances, especially depression, than pain reflected to the upper part of the trunk. Head found this to be the case in individuals with a negative family and past medical history. He ascribed the psychic disturbances to involvement of the vegetative nervous system—the abdomen being, in the words of James,[11] "the sounding board of the emotions." One can readily conceive how relatively mild gastro-intestinal lesions may, in an individual with a neurotic make-up, produce a variety of emotional disturbances in keeping with Head's conception, which would mask the original abdominal complaints. That the superimposed neuropsychiatric manifestations may disguise the underlying organic condition is shown by the following cases:

CASE 5.—M. F., a man, aged 44, a merchant, seen in March, 1924, complained of insomnia, dizziness, nausea and vomiting, general weakness, and loss of weight. He was under observation in two general hospitals, at which times no organic disease was found. His family history and past medical history were irrelevant. He was a widower and had a great deal of trouble with his children. He was treated as a psychoneurotic patient at the Orthopedic Hospital, where, in a few months, he completely recovered. He remained in good health until September, 1927, when he returned, complaining of attacks of headache, dizziness, general weakness and insomnia, attributing these difficulties to business reverses and unpleasant differences with his son-in-law. Although he had been ill for only a few weeks, he appeared pale and, when questioned closely, showed a slight difficulty in swallowing. The roentgen examination was inconclusive but esophagoscopy by Dr. Gabriel Tucker established the diagnosis of carcinoma of the esophagus. Despite the suffering incident to the lesion and the treatment, his neuropsychiatric symptoms during the remaining fifteen months of life were not so pronounced as during the attack of three years previously.

In this case the organic lesion occurring in an individual with a psychoneurotic make-up and with a previous psychoneurotic episode would have been easily overlooked were it not for the close questioning in the case and the existence of a slight secondary anemia.

CASE 6.—J. L., a woman, aged 37, married, with an irrelevent family and past medical history, was referred to the neurologic clinic of the Orthopedic Hospital in October, 1927, as a case of gastric neurosis. She complained of nervousness, loss of weight, and palpitation of the heart, with considerable epigastric pain, which was somewhat relieved by food. She was studied at the hospital with the following observations:

The gastric analysis showed only a moderate degree of hyperchlorhydria. The roentgenogram of the gastro-intestinal tract was entirely negative. There was extreme tenderness in the epigastrium, with marked rigidity of the upper part of the right rectus muscle. Despite the extreme nervousness and relatively negative roentgen observations, an exploratory operation was advised. This was done by Dr. George Muller at the university hospital, and a large ulcer was found on the posterior wall of the stomach, not involving the pyloric region, and therefore producing no demonstrable filling defect. Following a gastro-enterostomy, she gained 20 pounds (9 Kg.) and was entirely relieved of the symptoms.

This woman had been referred as a psychoneurotic patient; superficially, she might easily have been regarded as such. Despite the negative laboratory observations, however, a careful history and the constant abdominal pain with rigidity in the upper part of the abdomen led to the unmasking of the true condition.

CASE 7.—P. S., a man, aged 45, a clothing operator, had been treated by one of us from 1919 to 1924. His family history was negative. The patient had the usual complaints of general weakness, fatigability, abdominal pain and repeated attacks of dizziness. He had frequent attacks of indigestion, which apparently had no reference to meals and were unaccompanied

6. Alvarez, W. C.: Ways in Which Emotions Can Affect the Digestive Tract, J. A. M. A. **92**: 1231 (April 13) 1929.

7. Ziegler, L. H.: Clinical Phenomena Associated with Depressions, Anxieties and Other Affective or Mood Disorders, Am. J. Psychiat. **8**: 849 (March) 1929.

8. McLester, James: Psychic and Emotional Factors in Their Relation to Disorders of the Digestive Tract, J. A. M. A. **89**: 19 (Sept. 24) 1927.

9. Kantor, J. L.: Neurogenic and Psychogenic Disorders of the Alimentary Canal, J. Nerv. & Ment. Dis. **70**: 28 (July), and 179, (Aug.) 1929.

10. Head, Henry: On Disturbances of Sensation with Especial Reference to the Pain of Visceral Disease: part I, Brain **16**: 1-134, 1893, and part II (Head and Neck) ibid. **17**: 339-480, 1894.

11. James, William: Principles of Psychology, New York **2**: 449-454, 1927.

by nausea and vomiting, but there was marked constipation. The entire attitude of the patient was that of pronounced psychoneurosis. He showed improvement with a bromide treatment, suggestion and persuasion, gaining and losing weight depending on his emotional state. He had occasional fainting spells, frequently caused by emotional stress. In April, 1924, he had one of these attacks and his physician was summoned. There was also a history of an argument with the foreman in the shop in which he was employed, after which he fainted. His wife casually remarked that the patient had had a bowel movement which was black. Examination revealed that it was melena, and the patient was admitted to the university hospital without delay. A roentgen examination within a few days revealed a duodenal ulcer, and, at an operation by Dr. I. S. Ravdin, he was found to have a hard mass in the region of the duodenum. He died a few weeks later of metastases of carcinoma of the duodenum.

This man undoubtedly had an organic lesion that had not been carefully investigated. The symptoms yielded to psychologic treatment until malignant degeneration set in and the organic manifestations became evident.

CASE 8.—J. B., a man, aged 38, a fireman, with a marked psychopathic family history, when first seen in May, 1928, complained of attacks of precordial distress, dyspnea, anxiety and pronounced nervousness. He had been examined by police surgeons at the fire-house on two or three occasions, and the case was diagnosed as "hysteria." Between attacks, he seemed to have been in fairly good health excepting for somewhat increased fatigability. The patient was rather undersized though fairly well nourished and weighed 135 pounds (61 Kg.). The size of the heart was within normal limits, the pulse rate 96, the blood pressure 166 systolic and 70 diastolic. There was no exophthalmos and no von Graefe sign. The thyroid was slightly enlarged. The abdomen was soft and somewhat tender around the umbilicus and just to the median line of the right lower quadrant. The patient was admitted to the Policeman's and Fireman's Ward at the Philadelphia General Hospital, where all examinations, including a complete gastro-intestinal study, were entirely negative. However, from observation over a period of months, it was felt that his attacks were due to a mechanical cause, probably abdominal in location. A laparotomy was performed (Dr. Hubley Owen) and an extremely long appendix, extending from the retrocecal region to the retrohepatic region, was found and removed. The patient made an uneventful recovery, returning to duty within eight weeks.

He remained in good health until the spring of 1926, when he developed pronounced anxiety, restlessness, insomnia, loss of appetite and weight, and feared such things as going out into the street. At this time there had been a great amount of worry due to illness and domestic discord within the family. At the Orthopedic Hospital careful studies failed to reveal organic etiology and within a few months he recovered from an anxiety neurosis, returning to active duty in the fire bureau, where he has been ever since.

At the time of the attack in 1923, the patient was regarded as definitely psychoneurotic. However, he appeared to be in fairly good health between attacks. There was no psychogenic background, and on examination it was felt that there was visceral difficulty to account for his trouble. This was verified both by the operative observations and the subsequent recovery. The second episode, in 1926, was associated with definite psychogenic factors, and in addition the character of the symptoms was such that they bespoke very clearly their psychologic nature.

CASE 9.—H. R., a man, aged 42, a broker, came to Philadelphia in September, 1927, complaining of nervousness, insomnia, restlessness, loss of appetite and vague abdominal discomfort, not related to the intake of food. The condition was gradual in onset and of about four months' duration. Family and past medical histories were irrelevant. The family ascribed the trouble to financial reverses, and his wife insisted on Christian science treatment. Physical examinations and laboratory investigations made in Boston and repeated in Philadelphia disclosed no positive finding excepting a mild secondary anemia; roentgen examination revealed no abnormalities. A psychiatric examination disclosed a mild anxiety state without definite depression and a persistent, gradually increasing complaint of abdominal discomfort with very little emotional coloring. An exploratory laparotomy was advised, and an operation in October, 1927, by Dr. Michael Warmuth revealed carcinomatosis of the peritoneal cavity with the primary lesion in the small intestine.

A careful analysis of the case, negative family and past medical histories, the gradual onset of the abdominal discomfort, the secondary character of the nervous symptoms, and especially the character of emotional reaction, aroused the suspicion of primary visceral disease. Despite negative physical and laboratory examinations an operation was advocated.

CASE 10.—J. L., a man, aged 37, a knitter, was referred by the genito-urinary clinic because of sharp shooting pain in the perineum, of several months' duration. Complete genito-urinary studies, including catheterization of both kidneys, revealed no abnormalities or disease of the spinal cord, and a neurosis was suspected. Neuropsychiatric studies revealed no evidence of organic neurologic disease, nor was there evidence of neurosis. A rectal examination revealed cryptitis and internal hemorrhoids. An operation gave complete relief within a few days.

In this case, the very absence of neuropsychiatric symptoms bespoke the existence of visceral disease.

CASE 11.—F. H., a boy, aged 12 years, in September, 1922, suddenly developed epileptiform convulsions. He was studied most carefully from every angle, having been under close medical observation since childhood, owing to the fact that his was a case of asymmetrical development of the limbs without paralysis or evidence of asymmetrical cranial development. A few months after the first convulsions acute appendicitis developed and he was operated on, but the removal of the appendix failed to prevent the recurrence of the convulsions. A complete study of the cranium and accessory sinuses by Dr. G. E. Pfahler was entirely negative. A comprehensive gastro-intestinal study showed some evidence of cecal stasis, thought to be due to postoperative adhesions. Operation revealed only a few minor filmy bands, which were not considered sufficient to produce symptoms of obstruction but were removed. The convulsions returned with moderate severity but this time the patient's mother made the observation that they were always coincident with drinking milk. Exclusion of milk from the boy's diet was followed by a complete recovery, and there has been no recurrence of the convulsions since June, 1924.

This appears to be a true case of protein anaphylaxis with epileptiform convulsions. Such cases have been reported by Ward and Patterson.[12] While anaphylaxis cannot be regarded as a visceral disease, it was deemed advisable to bring it into relation with neuropsychiatric counterfeits.

### GENITO-URINARY GROUP

Pain over the bladder region, painful and frequent urination, impotence, premature ejaculation and failure of erectile power are frequently of psychogenic origin. This is not difficult to understand when it is borne in mind that the pelvic organs are innervated to a great extent by the involuntary nervous system—the lumbar sympathetic and sacral autonomic—and that these are subject to segmental and suprasegmental—cortical and subcortical innervation [9]—and therefore by psychic and especially emotional states. The pudendal nerve—the

12. Ward, J. F., and Patterson, H. A.: Protein Sensitization in Epilepsy, Arch. Neurol. & Psychiat. 17: 427 (April) 1927.

somatic component—innervates largely the external sphincter and the pelvic floor. There is still another reason why these organs are a favored seat of neurotic expression: the sex development, in a broad sense, intimately conditions the development of the entire personality, and many disturbances in the latter show a tendency to "fixation" at the genital level. Feelings of inferiority, self accusation and depreciation have a tendency to manifest themselves by pelvic symptoms. Therefore, pelvic symptoms, common not only in the psychoneuroses but also in the psychoses, are evidences of regression.[13]

But pelvic symptoms due to structural changes in the bladder and genitalia may be accompanied by a great many complaints not related to these organs, and by their bizarreness and variability may be of definitely psychoneurotic or psychotic nature. In these cases, the underlying pathologic condition may be easily overlooked, as in the following case:

CASE 12.—J. H., a man, aged 43, a laborer, was referred by Dr. Jacob Makler to the Neurologic Clinic of the Graduate Hospital in May, 1930, complaining of insomnia, nervousness, a feeling of despondency, inability to concentrate or to work, loss of weight, pain in the hypogastrium, frequency of urination, and impotence. The condition commenced about six months previously with distress in the bladder and frequency in urination, following some emotional disturbance incidental to marital difficulties. The patient had never observed blood in the urine, and several physicians had told him that he was nervous. His father committed suicide at the age of 52; otherwise his family and past medical histories were unimportant. Objectively, the patient was moderately well developed and nourished. General physical and neurologic examinations were normal. He appeared much older than his actual age, was very depressed, talked in an undertone, and ascribed his difficulties to a venereal disease which he thought must have been contracted in his youthful days. The somatic complaints and the depression led us to suspect an involution psychosis. The blood Wassermann reaction was negative. He was referred to the genito-urinary department but discontinued attending the clinic. The following subsequent report was obtained from his family physician, Dr. Makler. He went to the genito-urinary department of another hospital, where carcinoma in the urinary bladder was found. He was operated on at the Philadelphia General Hospital and succumbed shortly thereafter.

From a psychiatric standpoint, this case was clearly one of involution psychosis. A careful chronological study, however, directed attention to the genito-urinary tract as the immediate causative factor in his condition.

### THE SCIATIC SYNDROME

The "sciaticas" require at all times an etiologic diagnosis. This was recently reemphasized by Grossman and Keschner,[14] who call attention to the fact that sciaticas often mask bony changes in the pelvis or neoplastic conditions around the spinal cord. It may be well to call attention to the fact that sciatic pain may be the only evidence of intrapelvic disease, as illustrated in the following case:

CASE 13.—M. S., a woman, aged 43, with irrelevant family and past medical histories, complained in 1920 of recurrent attacks of pain in the left foot for two years. The pain was sharp and shooting in character. It often appeared after retiring at night and became progressively greater in frequency. A number of doubtful teeth were removed without relief. Neurologic examination was negative. A pelvic examination by Dr. J. C. Hirst revealed a hitherto unrecognized small fibroid tumor attached in the neighborhood of the left cornu uteri. A hysterectomy (St. Agnes Hospital) resulted in permanent relief.

No diagnosis of sciatica is justifiable without a complete and often repeated pelvic study. The following case illustrates this point from another angle:

CASE 14.—G. K., a man, aged 35, a broker, in August, 1929, complained of pain in the back and in the right thigh and leg. When he was a child he had had occasional pains in the back, causing incapacitation for several weeks at a time. At times he was free from pain for a period of months and even years and actively engaged in outdoor sports. About one and one-half years before observation the pain became much worse, following a strenuous game of handball. Since then he had had great discomfort. The pain was located chiefly over the region of the right sacro-iliac joint, radiating into the hip and leg. It was dull in character but not influenced by weather, coughing or sneezing. The pain improved with rest and the application of heat. There was no history of any important illness or injury. He stated that he had not had venereal disease. A tonsillectomy had been performed three years before. He did not indulge in alcohol.

The patient was well built and well developed muscularly. His back was symmetrical, other than a slight drooping of the left shoulder. His spine was in the midline and there was no deviation or rotation. There was, however, a moderate increase in the lumbar curve, which was explained by the moderately protruding abdomen. There was no definite muscle spasm. The motions of the spine were free and unrestricted, causing no discomfort. There was no pain on pressure throughout the spinous processes, lumbosacral region, sacro-iliac joints or along the course of the sciatic nerve. Anteriorly, the chest was symmetrical and the abdomen protruding. All signs for sacro-iliac derangement were negative.

A neurologic examination revealed no evidence of organic disease. The Lasègue sign was negative. The Achilles jerks and knee jerks were equal and prompt on both sides. A roentgenogram of the teeth was entirely negative. Prostatic examination, by two genito-urinary specialists, revealed no evidence of pus. The orthopedic examination confirmed the observations, and baking and massage were advised. This, however, did not relieve the patient.

About six months ago he came in with the following story: Without any apparent cause, he developed a purulent urethral discharge which on examination was found to be a mixed staphylococcus infection. A few days after discharge, the patient was entirely free from pain in the sacro-iliac region and along the sciatic nerve. The urethral discharge continued for several weeks, during which time the patient was symptom-free. It ceased, and there was a return of the pain in the back and leg. With subsequent massage and use of autogenous vaccine, his symptoms subsided entirely.

In neuritides, a search should always be made for focal infections. Often it is not sufficiently persistent or is incomplete.

### COMMENT

This presentation would be of little use if it could not answer, or attempt to answer, two questions: (1) Why were these errors made and (2) What general principles should be followed to avoid similar mistakes?

1. Regarding the first question, several factors come into consideration. The first of these includes faulty and incomplete examinations. Some cases are referred with the assurance that no organic disease exists and the correctness of such observations is assumed without adequate check-up (cases 2, 3, 6, 9 and 10). Many organic conditions, such as the "myocarditides" and carcinomas of abdominal organs, fail to reveal, in the early stages, trustworthy organic manifestations (cases 1, 2, 6, 9 and 13). In some cases the underlying causes, such as some focal infections, are illusive and difficult of demonstration. In others, unwillingness and

13. Freud, Sigmund: A General Introduction to Psychoanalysis, translated by G. Stanley Hall, New York, Boni and Liveright, 1920, p. 295.
14. Grossman, Morris; and Keschner, Moses: The Sciatic Syndrome, Arch. Neurol. & Psychiat. 21: 398 (Feb.) 1929.

incooperativeness preclude suggested investigation. A second factor is the assumption of the presence of a psychoneurosis because of the richness, bizarreness and variability of "functional" symptoms, which make further investigations seem unnecessary (cases 1, 2, 3, 4, 5, 7 and 12). A third factor is the assumption that the present symptoms are merely a variation of a former reaction to a psychogenic situation (cases 1, 5, 7 and 8). In the second and third factors not only a great deal of care but also much judgment must be exercised.

2. To avoid such errors as those just quoted, the following formulation seems justifiable in the practice of neuropsychiatry:

(*a*) Every case should be considered from the standpoint of personality make-up with reference to heredity, early development, school and vocational records, sexual and marital factors, social and economic adaptability, and the individual's reaction, at various periods, to environmental conditions. The latter includes disease, injury, and mental and physical storms.

(*b*) A careful history, especially the chronological development of the symptoms, should be obtained from the patient. The assistance of relatives and friends may be needed. Additional valuable information is frequently obtained in reexamination.

(*c*) Every case should receive a complete somatic as well as neurologic examination. Every neuropsychiatrist should be sufficiently well trained to do this and in every case urinalysis, complete blood count, blood chemistry and blood Wassermann tests should be made.

(*d*) No special examination should be made until the neuropsychiatrist has obtained a view of the total situation—of the formulation as to what possible physical and psychic changes are present in the patient with the particular make-up. This requires a psychologic evaluation of the case—a difficult and often time consuming method.

(*e*) Every one seems to agree that no case should be diagnosed as psychoneurosis until all indicated investigations are completed. Some insist that a diagnosis of psychoneurosis should always be one of exclusion. This, like blind faith in laboratory procedures, has its disadvantages: in some cases certain avoidable surgical procedures, especially in the nasopharynx and abdomen, only tend to accentuate the already existing vicious circle; and, lastly, it is felt that, in competent hands, neuropsychiatric manifestations can be evaluated on their own merits. This requires time consuming, repeated interviews. Special examinations, therefore, are best directed when the neuropsychiatric investigation justifies them. When doubt exists, however, the patient is justifiably subjected to investigations.

(*f*) From the standpoint of neuropsychiatry, every disease must be considered as having both a somatic and a psychic component. These two components are indivisible and should be evaluated in their relation to etiology and to the total situation. With this broad psychologic point of view, errors in diagnosis may frequently be avoided.

## SUMMARY

1. A variety of neuropsychiatric manifestations often mask visceral disease of etiologic significance.

2. Visceral disease may give rise to neurologic manifestations by reason of the fact that the viscera are innervated by the vegetative nervous system. They are not only influenced by the segmental and suprasegmental portions of the central nervous system and of the emotions but in turn are capable, when disturbed, of giving rise to a disturbance in the emotions and by reason of reflected pain to all sorts of peripheral phenomena. Psychic and emotional states influence the vegetative nervous system and visceral functions and vice versa.

3. Illustrative cases are given wherein neuropsychiatric symptoms have masked cardiac, pulmonary, gastro-intestial, pelvic and genito-urinary diseases.

4. The causes of errors in diagnoses are traceable to faulty and incomplete examinations, to the failure of judgment and proper evaluation of neuropsychiatric manifestations, and to the fact that in predisposed individuals the earliest manifestations of visceral disease may be purely psychiatric in type.

5. From the neuropsychiatric standpoint, disease cannot be regarded as purely psychic or purely somatic. Every disease has a somatic as well as a psychic component and should be viewed from that standpoint for both diagnostic and therapeutic purposes. Moreover, every case should be studied in the light of a total situation.

---

## ABSTRACT OF DISCUSSION

DR. JULIAN M. WOLFSOHN, San Francisco: Sometimes a neurosis is due to a physical cause and sometimes it has its starting from a mental cause. About a month ago I read a paper before the State Medical Society of California on "Traumatic Disease as a Cause of Mental Disorder," and I brought forward cases very similar to the cases cited by Drs. Weisenburg, Pleasants and Yaskin. The conclusions in that paper were just about the same. As an illustration, one of the individuals who had manifestations of psychosis for about a year, in which he went through a severe neurotic phase, was agitated and uncontrollable; but was finally in a position in which a physical examination could be made, a year and a half after the onset. At that time, tenderness was found in the right iliac fossa. At operation an abscess was found, containing about 2 ounces of thick, green pus, which had evidently been there thirty-two or thirty-three years. The patient was operated on and in two weeks went home, and has been free from any complaints whatever for ten years.

DR. DAVID C. WILSON, University, Va.: It is highly important to stress that the carcinoma or the ulcer, or whatever the patient has, is not the psychoneurosis; that is, because a person has a gallbladder, it doesn't mean that he cannot have a psychoneurosis. A psychoneurosis is a reduction of that person's personality, a part reaction, as it were; and just because the diagnosis was made in these cases of some organic lesion this does not mean that the patients did not have a psychoneurosis also. The authors made another point which I should like to have them discuss further. They seemed to imply that certain visceral diseases, organic diseases, had some certain rather definite personality reaction; that is, tuberculosis had some kind of definite nervous reaction; carcinoma, another. I don't think they meant that, but I should like them to bring out that point. Certainly in handling people in tuberculosis sanatoriums one sees a great many different psychoneurotic reactions, depending, as one would expect, on the different personalities of the patients.

DR. HENRY PLEASANTS, JR., West Chester, Pa.: One of the cases to which, because of lack of time, attention was not called was that of an individual who showed marked neuropsychiatric disturbance, which was extremely difficult to fathom; in fact, the patient at one time presented the picture of an early pernicious anemia before blood changes are demonstrable. This individual was carefully studied and, during this period, a depressive type of psychosis developed. We could not find anything as a cause of the factor until finally we discovered a streptococcus infection of the colon, which under appropriate vaccine, cleared up, its disappearance being accompanied by the appearance of hydrochloric acid in the gastric contents which had been absent before. This was an absolute instance of a masking of the somatic symptoms by neuropsychiatric manifestations.

DR. JOSEPH C. YASKIN, Philadelphia: I am afraid that Dr. Wilson misunderstood us. We did not mean to convey the idea that diseases in special organs produce special neuropsychiatric symptoms. These symptoms depend on a number of factors, such as the mental make-up of the individual, the duration and intensity of the disease, and the site of the process. Thus, in tuberculosis of the upper lobes there is a tendency to euphoria whereas with the invasion of the basal lobes or in diseases of the abdomen there is a tendency to depressive types of reaction.

## ROENTGEN TREATMENT OF AGRANULOCYTOSIS *

ALBERT E. TAUSSIG, M.D.
AND
PAUL C. SCHNOEBELEN, M.D.
ST. LOUIS

Although it has been nine years since Werner Schultz first described the new symptom complex which he termed agranulocytosis, and although several hundred cases have been reported in more or less detail, there is as yet no generally accepted definition by means of which the concept of the disease can be accurately circumscribed. Schultz's own definition of the disease is sharp enough: an acute febrile disease with angina, prostration and jaundice, a normal red blood picture, extreme leukopenia with nearly or quite complete absence of granulocytes, a normal number of blood platelets with absence of any tendency to hemorrhage, and an invariably fatal ending. Almost at once, however, cases were reported that lacked one or more of these cardinal symptoms. Jaundice was found more frequently absent than present; a considerable degree of secondary anemia is not rare in otherwise quite typical cases; instead of angina one may find ulcerative processes elsewhere, or even absent; an occasional case runs a chronic rather than an acute course and, finally, cases of recovery, often with repeated recurrence, occur. Accordingly it seems necessary to define agranulocytosis as characterized by fever, usually but not always by ulcerative processes, leukopenia with great diminution of the granulocytes, and nearly normal blood platelets. At autopsy a very characteristic change is found in the bone marrow, consisting in a great paucity of the myelogenous white cells, which are also absent or nearly so in any inflammatory foci that may occur.

But even this description is not quite precise. While a typical case is unmistakable, the disease shades off into a variety of other conditions that can definitely not be included in the concept of pure agranulocytosis. The most important of these is the myelopathy that sometimes occurs in the course of antisyphilitic treatment, most frequently after the use of one of the arsphenamines, but occasionally also after compounds of bismuth or mercury. Ordinarily such cases present a fairly typical clinical picture of their own. The metallic poison depresses all the functions of the bone marrow, so that one encounters, in addition to the symptom complex of agranulocytosis, an anemia, often extreme, and a sharp reduction in the blood platelets with a resulting tendency to hemorrhage. Large numbers of such cases have been reported,[1] and the condition seems to have been known for some years before Schultz's agranulocytosis was recognized as a clinical entity.

In typical cases the blood alteration in the panmyelopathy following antisyphilitic treatment is much more extensive than in agranulocytosis, so that the two can properly be distinguished. But individual cases of each approach one another so that it is possible, from the literature, to construct a series of cases shading almost imperceptibly from the typical agranulocytosis of Schultz to the equally typical panmyelopathy after arsphenamine. It would thus appear that the delimitation of the clinical picture of agranulocytosis is a somewhat artificial one. Nevertheless, most of the cases of agranulocytosis so definitely belong together that convenience justifies setting up this group of cases as a clinical entity.

Oddly enough, the myelopathy following antisyphilitic treatment seems to offer a much more favorable prognosis than true agranulocytosis, and a considerable proportion of the patients recover merely as the result of discontinuing the treatment. The explanation may lie in the fact that with the cessation of antisyphilitic treatment the causative factor of the myelopathy is withdrawn, whereas in true agranulocytosis the unknown agent continues to operate.

A similar condition is sometimes seen in diphtheria. A number of cases have been reported with the typical blood picture of agranulocytosis, differing only in the appearance after the first few days of a moderate percentage of eosinophils. Most of the cases hitherto observed occurred in the course of a single year in Alexandria, so that they are apparently more common in some epidemics than in others. Here, too, the mortality has been essentially better than in idiopathic agranulocytosis. Thus, of the eight cases reported by Farmakidis [2] and by Janz,[3] six recovered after the injection of large amounts of diphtheria antitoxin, making a mortality of only 25 per cent. The explanation of this low mortality is probably the same as that of the myelopathy following antisyphilitic treatment.

Cases of agranulocytosis have been repeatedly observed apparently to pass over into acute lymphatic leukemia. Whether this is really what occurs or whether the resemblance between agranulocytosis, properly so called, and the aleukemic stage of lymphatic leukemia is merely so close that they are readily confused cannot be determined until something more definite is known about the etiology of agranulocytosis.

The etiology is still fundamentally a mystery. Agranulocytosis has been observed repeatedly in the course of phlegmonous tonsillitis and of septicemia, during influenza,[4] in the course of Hodgkin's disease [5] and malaria,[6] in kidney tumor in an infant,[7] and even after the prophylactic injection of typhoid vaccine.[8] But these are obviously only secondary causes and presuppose a weakness of the bone marrow due to some other factor. The weakness can hardly be congenital, in spite of the fact that a familial occurrence of agranulocytosis has been observed,[9] since it would then occur more frequently in early life and not be, as it is, essentially a disease of late maturity. Everything indicates that the necrotic processes in the throat, mouth and elsewhere are the results, not the cause, of agranulocytosis. The fundamental etiologic factor may not be found until we have succeeded in producing agranu-

* From the medical service of the Jewish Hospital.

1. Aubertin, C., and Lévy, R.: Ann. de méd. **27**: 151-164 (Feb.) 1930. Farley, D. L.: Am. J. M. Sc. **179**: 214-227 (Feb.) 1930. Bock, H. E., and Wiede, K.: Folia haemat. **42**: 7-74 (Aug.) 1930.
2. Farmakidis, C.: Presse méd. **37**: 1121-1123 (Aug. 28) 1929.
3. Janz, G.: Med. Klin. **25**: 828-829 (May 24) 1929.
4. Benatt, A., and Pfeuffer, F.: München. med. Wchnschr. **76**: 1283 (Aug. 2) 1929.
5. Jaffé, R. H.: München. med. Wchnschr. **73**: 2012-2014 (Nov. 26) 1926.
6. Meyer, A. (Basel): Deutsche med. Wchnschr. **57**: 226-227 (Feb. 6) 1931.
7. de Lange and von Goor: Folia haemat. **27**: 251-256, 1922.
8. Bromberg, Leon; and Murphy, Paul: Agranulocytic Angina Following Prophylactic Typhoid Vaccination, J. A. M. A. **92**: 1266-1267 (April 13) 1929.
9. Hart, V. K.: Laryngoscope **37**: 357 (May), 798 (Nov.) 1927.

locytosis, as distinguished from a nearly complete prostration of the bone marrow, experimentally. A possible hint in this direction may be found in the relative frequency with which an allergic tendency has been observed in the victims of the disease. At present, however, our information on this subject is too scanty to justify conclusions.

In no aspect of the disease do opinions differ so widely as in the matter of treatment. Most of the cases in the literature have been treated symptomatically with stimulants and local antiseptics; many have been treated with foreign proteins but without perceptible effect. The production of a sterile turpentine abscess has been followed by a turn for the better,[10] and the latter has repeatedly been the case after injections of small doses of neoarsphenamine. Reznikoff[11] has reported three recoveries out of four cases of agranulocytosis treated with intravenous injections of guanine or adenine; but these results require confirmation by others, and in one case so treated at the Jewish Hospital of St. Louis no beneficial effect of any kind could be observed. Transfusions[12] have been followed by a sharp rise in the granulocyte count followed by recovery, and the same has been true of small stimulating doses of x-rays[13] applied to the long bones. Other observers, however, have failed to obtain any benefit either from transfusions[14] or from x-rays.[15]

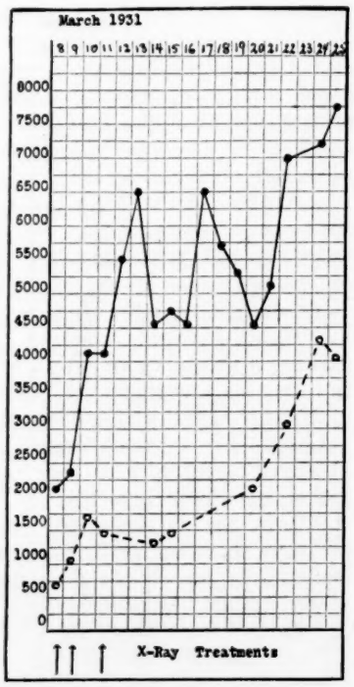



Chart 1.—Leukocytes (solid line) and granulocytes (broken line) in case 1.

The difficulty of estimating the value of therapeutic measures in agranulocytosis is twofold: no one observer, possibly excepting Friedmann with his forty-three cases treated by means of irradiation, has seen enough cases of agranulocytosis to be justified in drawing conclusions from his own experience; and the not infrequent spontaneous recovery from agranulocytosis makes it difficult, in any concrete case, to be certain of the rôle played by treatment in the patient's recovery.

Until recently, the total number of cases reported has not sufficed for the employment of statistical methods. At present, however, this is no longer the case. A review of the literature accessible to us, which unfortunately does not include the Slavic nor all of the Scandinavian, affords 334 well authenticated cases of agranulocytosis, care having been taken to exclude the other forms of bone marrow injury previously mentioned. An analysis of these cases reveals some interesting facts, which may be summarized as follows:[16]

1. Of the 330 cases in which the sex was noted, 104 were in males and 226 in females, a proportion of a little over 2:1; among the males the total mortality was 75 per cent; among the females 77 per cent.

2. The inflammatory lesions were distributed as follows: angina, 241, or 74 per cent; stomatitis, 36, or 11 per cent; no lesion of any kind, 17, or 5 per cent; anal ulcers, 13, or 4 per cent; other lesions, 18, or 5 per cent.

3. The age incidence was as follows: under 20 years, 26, or 9 per cent; from 20 to 40 years, 117, or 38 per cent; from 40 to 60 years, 127, or 40 per cent; over 60 years, 43, or 13 per cent.

4. In analyzing the results of therapeutic measures, it has seemed necessary to exclude from consideration those cases which terminate fatally within forty-eight hours of the time treatment was instituted. These were either fulminant cases in which no treatment could have been of avail, or cases which had been neglected until the end was near. It would obviously be unfair to estimate the value of any therapeutic measure when applied to a moribund patient. With this proviso, the results of therapy as recorded in the literature are shown in the accompanying table.

*Results of Therapeutic Measures*

| | Cases | Deaths | Mortality, per Cent |
|---|---|---|---|
| Cases treated by means of irradiation..... | 64 | 34 | 53 |
| Cases treated by means of transfusion..... | 53 | 34 | 64 |
| Cases treated with arsphenamine ..... | 33 | 24 | 73 |
| Cases treated with other therapeutic measures... | 178 | 133 | 75 |

Since Friedemann has reported such a large portion of all the cases of agranulocytosis treated by means of x-rays, it might be thought that the statistics may have been loaded by his favorable results and that the latter should be looked on somewhat skeptically. This is not the case. Friedemann and Elkeles[13] reported, in all, forty-three cases so treated. Of these patients, eighteen were moribund when first seen. Of the remaining twenty-five, twelve died, making a mortality of 48 per cent. Other observers have reported, in all, thirty-nine cases, in four of which the patients were moribund. Of the thirty-five remaining patients, twenty died, making a mortality of 57 per cent. Our own four cases showed a mortality of 50 per cent, figures which harmonize sufficiently well for so small a group.

In any event, the figures indicate definitely that transfusions and roentgen therapy are useful in the treatment of agranulocytosis and that, of the two, irradiation of the long bones gives the better results. It will probably be wise to use both methods in the treatment of a severe case, and doubtless the results will be the better, the earlier these methods are applied.

During the past year, seven patients with agranulocytosis entered the Jewish Hospital of St. Louis. Of these, two were moribund when admitted and died the same day; a third received only symptomatic treatment. The other four illustrate very well some of the features of roentgen therapy. We use 200 kilovolts corrected

10. Bock and Wiede (footnote 1).
11. Reznikoff, P.: J. Clin. Investigation **9**: 381-391 (Dec.) 1930.
12. Reye, E.: Med. Klin. **24**: 1437-1438 (Sept. 14) 1928. Finnigan, F. R.: J. Missouri M. A. **24**: 258 (June) 1927. Rosenthal, N.: Laryngoscope **40**: 592-597 (Aug.) 1930.
13. Friedemann, U., and Elkeles, A.: Deutsche med. Wchnschr. **56**: 947-950 (June 6) 1930. Ottenheimer, I.: Med. Klin. **24**: 1236-1237 (Aug. 10) 1928. Starlinger, W.: Klin. Wchnschr. **7**: 866, 1928.
14. Leuchtenberger, R.: Folia haemat. **39**: 63-101 (Oct.) 1929. Pfab, B.: Wien. klin. Wchnschr. **38**: 1302-1303 (Dec. 3) 1925.
15. Rosenthal, N. (footnote 12). Schultz, W.: Klin. Wchnschr. **8**: 1530-1532 (Aug. 13) 1929.

16. It will be noted that the totals in the different classifications do not tally. The reason for this is twofold: First, a number of the case reports fail to state the sex of the patient, others the age; some do not even note the site of the inflammatory lesion. Second, in analyzing the therapeutic results, cases of complete and long continued recovery, with subsequent relapse, were counted once for each attack. Only the extraordinary case of Rutledge, Hansen-Pruess and Thayer, with its innumerable recurrences recovering without therapy, was counted but once.

by sphere gap; 30 milliamperes, checked on two meters; a target skin distance of 50 cm.; a port of 30 cm.; a filter consisting of 0.5 mm. of copper plus 1 mm. of aluminum. With this set-up, an exposure of forty-five seconds corresponds to about one-twentieth erythema dose, the dose advised by Friedemann. This exposure was given at each sitting in cases 1, 3 and 4; in case 2 the time of each exposure was two and a half minutes.

## REPORT OF CASES

CASE 1.[17]—N. W., a woman, aged 30, was admitted to the Jewish Hospital, March 9, 1931, with a history of fever and general malaise for five days. The temperature was 100.6, pulse 88, respiration 44. Physical examination gave negative results except for a dirty gray exudate on both tonsils. The blood contained 4,400,000 red cells, 75 per cent hemoglobin, 2,000 white cells; the differential count showed stabs, 19 per cent; segmented cells, 4 per cent; lymphocytes, 50 per cent; mononuclears, 24 per cent; degenerated cells, 3 per cent. The subsequent changes in the blood are shown on the chart. The patient received three roentgen treatments over the long bones of 0.05 skin unit dose each. Almost at once the blood and the clinical picture showed a marked improvement, and she was discharged in good condition, March 25. During her entire stay in hospital the patient received fairly large doses of desiccated hog stomach.

CASE 2.—Mrs. B. S., aged 51, was observed in consultation with Dr. D. L. Sexton, who had been treating her at home for pityriasis rosea. Aug. 1, 1930, she felt slightly ill and had a temperature of 101, which rose next day to 102, with great

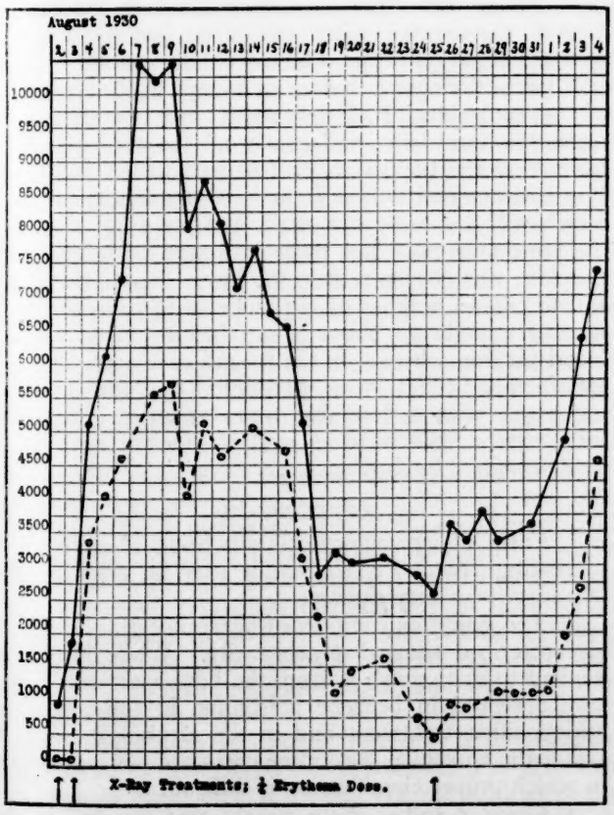



Chart 2.—Leukocytes (solid line) and granulocytes (broken line) in case 2.

prostration and crackles over the bases of both lungs. Pneumonia being feared, she was transferred to the Jewish Hospital. Physical examination gave negative results, except as already described and except for a thrombosed pile; the mouth and the pharynx, in particular, were quite clear. A blood count showed 3,880,000 red cells, 73 per cent hemoglobin and 825 white cells; there were no granulocytes, only lymphocytes being found in the stained spread. The subsequent changes in the blood are recorded on the chart. On August 2 and again on August 3, she received an irradiation of 0.25 skin unit dose over the long bones. An immediate clinical and hematologic improvement resulted; within a few days the blood picture was normal and the patient clinically well. Two weeks later the white blood

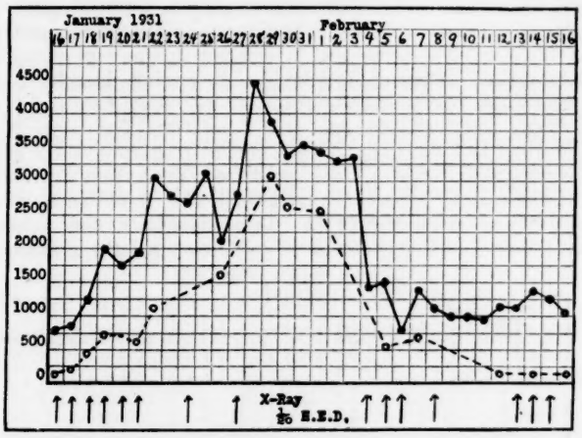



Chart 3.—Leukocytes (solid line) and granulocytes (broken line) in case 3.

cell count and the percentage of granulocytes dropped sharply, though the patient continued to feel well. August 25, however, the white blood cell count having fallen to 2,400 and the granulocytes to 11 per cent, she again received an irradiation of 0.25 skin unit dose over the long bones. Again there was a prompt rise in the white and granulocyte count but not to normal. August 30, she began to receive daily large doses of liver extract. This was followed by a rapid return of the blood picture to normal, and the patient was discharged, clinically well, September 5. She has remained well ever since.

CASE 3.—Miss E. C., aged 80, had received a radium treatment for cervical polyp in the spring of 1930. A small but irritable rectal burn resulted that made her an invalid all summer. In the fall she grew much better and was supposed to be on the way to recovery. January 15, however, weakness and vague malaise set in and the next day, on attempting to get out of bed, she collapsed on the floor. She was brought to the Jewish Hospital, where she was found to have a temperature of 103, pulse 110, respiration 26. Physical examination gave negative results except for the usual senile changes and a small rectal ulcer. The diagnosis was not made until the next day, when a blood count was done which showed 4,420,000 red cells, 80 per cent hemoglobin and 950 white cells, with 5 per cent granulocytes. A slight angina then made its appearance, rapidly grew worse and culminated in phlegmonous tonsillitis; there was also some gingivitis. For the first six days of her stay in the hospital, she received a daily irradiation of 0.05 skin unit dose over the long bones and during the second week two similar doses. The white blood cell count and the granulocyte count slowly rose to a fairly satisfactory figure (chart 3); the angina cleared up completely; the fever ceased, and the patient gained strength and felt quite well. February 3, the white blood cell count and the granulocyte count again dropped sharply and again presented the picture of an extreme agranulocytosis. This time, roentgen therapy was of no avail, nor was there any response to the injection of large doses of leukocyte extract and the feeding of liver extract. In spite of the marked agranulocytosis, the patient remained euphoric and free from symptoms for ten days. February 13, the temperature rose; the patient became drowsy and finally comatose, and died, February 17. Autopsy showed only the typical bone marrow changes and the rectal ulcer previously referred to.

CASE 4.—Mrs. M. G., aged 41, was observed in consultation with Dr. Elmer Richman. Her previous history was not important. For a week she had had a coryza with an unusual degree of prostration. The white blood cell count at that time was 7,000, with a normal differential picture. On the

17. For permission to report this case I am indebted to Dr. Jerome E. Cook.

appearance of a suppuration in the middle ear, she was transferred to the Jewish Hospital, with a temperature of 102, pulse 100 and respiration 20. Physical examination gave negative results except for a purulent discharge from the left ear and an injected pharynx. A blood count showed 4,400,000 red cells, 80 per cent hemoglobin, and 3,300 white cells, all of which were large and small lymphocytes. A blood culture was negative. In spite of adequate local treatment, the temperature remained high; the pharynx rapidly became phlegmonous, with necrotic areas; the prostration grew extreme, and the white blood cell count fell to 650 without any granulocytes. The patient appeared moribund. Beginning March 4, she received six daily irradiations over the long bones, 0.1 the first day and 0.05 skin unit dose thereafter. The white blood cell count and the granulocyte count rose sharply to far above the normal (chart 4); the fever ceased; the angina cleared up, and the patient became clinically well. Her condition remained satisfactory until March 20. Two days later, concomitantly with a drop in the white blood cell count and the granulocyte

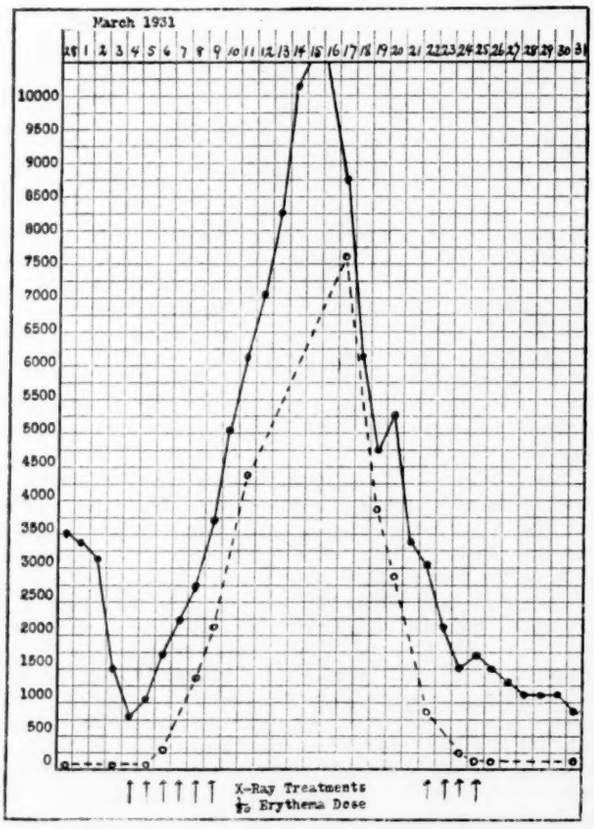



Chart 4.—Leukocytes (solid line) and granulocytes (broken line) in case 4.

count, the pharynx again became injected. Four daily irradiations of 0.05 skin unit dose over the long bones failed to halt the drop in the white blood cell count and the granulocyte count; the fever reappeared, and the angina became phlegmonous. Liver feeding, the injection of leukocyte extract and of "nucleotids," according to the method of Reznikoff, were equally without effect. The patient became increasingly prostrated, finally grew comatose, and died, April 1. Autopsy was essentially negative except for the usual bone marrow changes characteristic of agranulocytosis.

## COMMENT

An inspection of the blood charts in these four cases can hardly fail to justify the conclusion that stimulating doses of x-rays are an effective therapeutic measure in agranulocytosis, provided the injury to the bone marrow is not too extreme. In two of the cases recovery was permanent, at least for the time being. In the other two the first response was also satisfactory. Apparently, however, the unknown toxic agent, obviously independent of the angina, continued to act, and finally depressed the bone marrow function to such an extent that neither roentgen therapy nor any of the other measures used were of avail. It is of interest to note that in the second case roentgen therapy was only moderately effective during the patient's relapse but that the blood returned to normal concomitantly with the feeding of liver extract. Unfortunately, this is not the usual experience in these cases.

The use of roentgen therapy in agranulocytosis dates from Friedemann's first communication in 1927 and has been kept alive by repeated papers on this subject ever since. The effect of the usual massive dose on the bone marrow is well known. There is a simultaneous depression of the production of erythrocytes, leukocytes and thrombocytes, producing the picture of an aplastic anemia, often with a teudency to hemorrhage. Apparently, minimal doses have the opposite effect, especially as regards the granulocytes. Burgheim [18] exposed the long bones of a number of healthy individuals to single exposures of one-twentieth erythema dose; in each case he observed a slight but definite rise in the granulocyte count, often within two hours. Thoma gave roentgen treatments to a number of typhoid patients with marked leukopenia and observed a rise in the leukocyte count of from 1,000 to 3,000. In diseased bone marrow the effect of roentgen therapy appears to be still more marked. In three of our cases the rapidity with which the granulocytes regenerated after the first few irradiations speaks strongly for the value of the treatment.

What is the optimum dose of x-rays in the treatment of agranulocytosis? Friedemann uses one-twentieth erythema dose daily, and nearly all the clinicians who have used the method have followed in his footsteps. His fundamental notion is to have a quantity of rays which will assuredly not exert a depressing action on the bone marrow. But there is reason to believe that the dose was chosen a little too low. In our third and fourth cases a number of exposures with this dose were necessary to bring about a satisfactory effect on the blood picture, whereas in the second case a prompt and satisfactory effect was produced by one or two exposures with a dose five times as great. Whether the larger dose is safe as well as efficient remains to be determined by further experience.

## CONCLUSIONS

1. Cases of agranulocytosis are being observed with increasing frequency, so that it may be said to have ceased to be a rare disease.

2. The symptom complex of agranulocytosis has been circumscribed somewhat arbitrarily. While it is convenient to distinguish it from the bone marrow depression observed in benzene poisoning, in the course of antisyphilitic treatment and in the aleukemic stage of lymphatic leukemia, borderline cases are not infrequent, in which proper classification is difficult.

3. Cases 2 and 3 show clearly that the fall in the granulocytic blood count may precede the appearance of a sore throat. A study of the literature reveals numerous similar observations and justifies the conclusion that the agranulocytic blood picture is the cause and not the result of the angina.

4. Agranulocytosis occurs about twice as frequently in women as in men; the mortality in the two sexes is about the same.

18. Burgheim, F.: Strahlentherapie **38**: 152-156, 1930.

5. Of the methods of treatment at present in use, the most promising appears to be the irradiation of the long bones by means of minimal doses of x-rays. Transfusions are also apparently useful.

3720 Washington Boulevard.

---

# ABERRANT THYROID *

RICHARD B. CATTELL, M.D.
BOSTON

In its broadest sense the term "aberrant thyroid" includes all portions of thyroid tissue in other than the normal position of the thyroid gland and unconnected with it. This includes (1) lingual thyroid and thyroid tissue found along the thyroglossal tract, (2) lateral aberrant thyroids or those in a cervical position lateral to the jugular vein, (3) the extremely rare intrathoracic goiter with no connection with the main thyroid body and, finally, (4) those portions of thyroid tissue found in teratoid tumors and in sites far removed from the thyroid. The fact that certain portions of the thyroid extend into intrathoracic, substernal, subclavicular, retrotracheal and retrolaryngeal positions does not make them aberrant in any sense. True intrathoracic goiters with no connection with the inferior pole of the thyroid are rarely found and it is quite likely that these have previously been a part of the gland but have become separated during their growth and descent during adult life through the upper thoracic strait. Davis [1] found normal appearing thyroid tissues in the aortic fat bodies of twenty-two out of fifty dogs examined but did not find them in any other animal and they are not present in man, so are of only academic interest. In this paper only lateral aberrant thyroids will be considered since the two cases of lingual aberrant thyroid that we have observed in the clinic have already been reported [2] and because the thyroid tissue in tumors is not of clinical interest.

Thirteen patients with lateral aberrant thyroids have been operated on in the Lahey Clinic in the past six years. From a review of the literature one is impressed with the relatively rare occurrence of this condition. Billings and Paul [3] were able to find only thirty-four proved cases in the literature from 1857 to 1923, and they added one case. All their reviewed reports were individual case reports with the exception of two, each describing three instances. In 1928 Leech, Smith and Clute [4] reported four cases from this clinic. Twelve additional cases have been reported since this publication, including a possible bilateral one by Lewisohn.[5] Nine additional cases have been seen since the first report from the clinic and all thirteen cases are considered together since a follow-up examination has been obtained in all of them.

A consideration of the embryology is of practical importance to understand this condition. The origin of the thyroid gland from a median ventral position in the pharynx is well established. This readily explains the origin and presence of thyroglossal cysts, sinuses and fistulas as well as lingual thyroid and the aberrant portions of the thyroid tissue in the midline. On the other hand, it does not explain the lateral cervical portions of thyroid tissue. From a review of comparative and human embryologic studies, it seems clear that groups of cells arise from a lateral position in the pharynx which would correspond to a fifth pharyngeal pouch or ultimobranchial body.[6] These pass downward and come into relation to the main thyroid body. Norris,[7] in a study of seventy-two human embryos, has shown that these cell groups fuse with the lateral lobes of the thyroid in the 15 mm. human embryos but atrophy and form no part of the normal thyroid gland. An arrest in this lateral descent and atrophy will account for lateral aberrant thyroids and seems a logical explanation of their origin. An arrest in development is further indicated since all our thirteen cases have shown a tumor structure in the aberrant thyroid, and this agrees with our understanding of fetal rests.

A consideration of our thirteen cases offers a clear clinical picture of this disease and is perhaps more accurate than a review of individual case reports. The age of these patients seems of little value in diagnosis. The youngest was 11 years of age, and this case showed adenocarcinoma in the aberrant thyroid. Five patients were under 30 and eight were above this age, two of them being 67 and 70, respectively. There were ten females and three males, a ratio which corresponds with the incidence of patients having thyroid disease in our clinic. The duration of the tumor seems of more importance. Only four had been noticed under one year. Of the nine present longer than a year, five had been noted over five years and one for twenty years. It would seem that a tumor of long standing that had shown little variation in size would be more likely to be of this type than one with a history of rapid growth or increase and decrease in size. There are no characteristic symptoms associated with this condition. Ten of our patients sought advice because of the discovery of a mass in their neck. One had symptoms of hyperthyroidism, while another had symptoms related to pressure of the tumor on the trachea. Hyperthyroidism, which was noted in one case, was due not to the aberrant thyroid but to a hyperplastic main thyroid gland. There was no corresponding hyperplasia in the aberrant thyroid tissue. We have no evidence in any of our cases to indicate an increased physiologic activity of the lateral aberrant thyroids. There has been no elevation of the basal metabolic rate; there has been nothing in their histories to suggest changes in size of the tumors similar to those commonly observed in the thyroid gland. This absence of symptoms related to these tumors is of definite diagnostic value and is helpful in differentiating them from lymphosarcoma and tuberculous cervical glands.

With regard to position, six patients presented tumors on the right side and six on the left side with one being found in the midline. A single discrete mass was found in eight patients. These varied in size from an English walnut to a small orange. In four patients there were extensive tumor nodules scattered from the mastoid process and angle of the jaw to the clavicle. In one, only a few nodules were present. None of our

---

* From the Lahey Clinic.

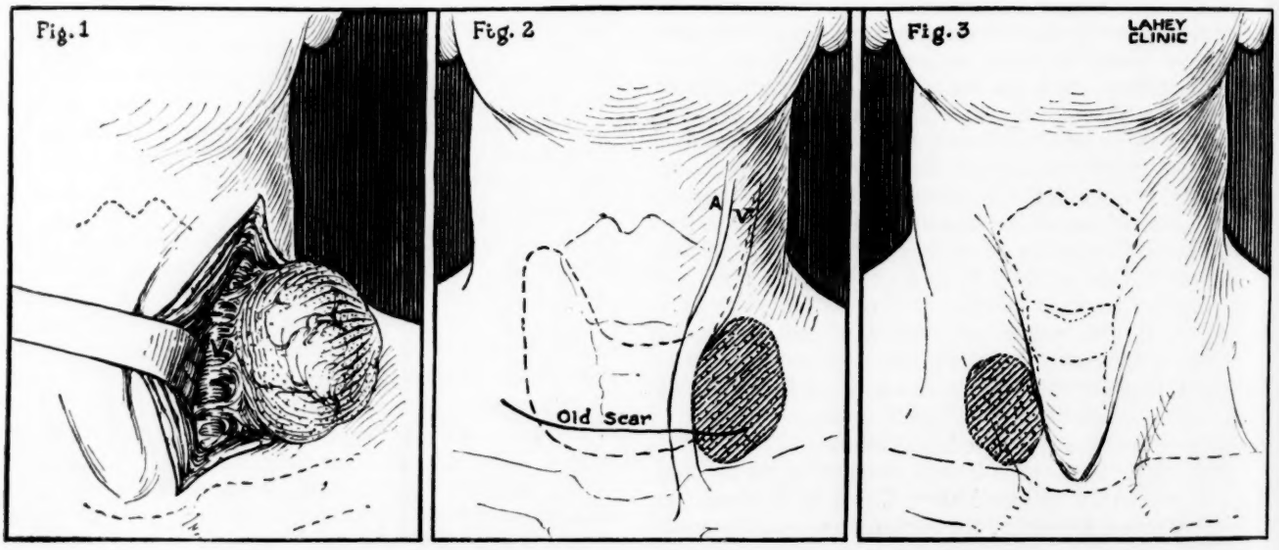
* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Davis, D. J.: The Periaortic Fat Bodies, Arch. Path. & Lab. Med. **4**: 937 (Dec.) 1927.
2. Lahey, F. H.: Lingual Goiter, Surg. Gynec. Obst. **36**: 395 (March) 1923. Cattell, R. B., and Hoover, W. B.: Lingual Thyroid Gland, S. Clin. North America **9**: 1355 (Dec.) 1929.
3. Billings, A. E., and Paul, J. R.: Tumors of Lateral Aberrant Thyroids, Bull. 9, Ayer Clin. Lab., 1925, p. 27.
4. Leech, J. V.; Smith, L. W., and Clute, H. M.: Aberrant Thyroid Glands, Am. J. Path. **4**: 481 (Sept.) 1928.
5. Lewisohn, Richard: Symmetrical Lateral Aberrant Thyroid, Ann. Surg. **84**: 675 (Nov.) 1926.
6. Wenglowski, R.: Fistulas and Cysts of the Neck, Arch. f. klin. Chir. **98**: 151, 1912.
7. Norris, E. H.: The Early Morphogenesis of the Human Thyroid Gland, Am. J. Anat. **24**: 443 (Nov.) 1918.

cases were proved to have bilateral involvement. The diagnosis of lateral aberrant thyroid is rarely made before operation. A preoperative diagnosis was made in two of our patients without biopsy, but these were in recent cases after several had been observed. In any consideration of cervical tumors this condition should be thought of, although no positive diagnosis can be made without a biopsy. Three of our patients had had a biopsy before coming to us. In our series a diagnosis of tuberculous glands was made three times; Hodgkin's disease, branchial cyst, dermoid cyst, adenoma of the thyroid and carcinoma or sentinel gland were made each once. Other conditions which must be considered are tumors of nerve origin, carotid body tumors, lipomas, fibromas and carcinomas of nasal or pharyngeal origin.

The operative treatment in our cases was determined by the extent of the tumor. In five, local excisions were done. Four had local excisions together with a biopsy of the main thyroid or hemithyroidectomy. Four had radical block dissections of the neck with removal of the internal jugular vein. The main thyroid gland was

The microscopic examination of these glands has shown a characteristic picture. All have shown the same papillary type of structure which is recognized as papillary cystadenoma. Six showed this type of structure without invasive characteristics and without marked epithelial proliferation. Five showed malignant characteristics consisting of invasion of muscles and involvement of the regional lymph nodes. Two showed definite adenocarcinoma. One patient with multiple aberrant nodules showed hyperplasia and moderate colloid storage in the nodules. The metabolism test was normal and there was no change in the main body of the thyroid gland. Only four showed any appreciable amount of colloid, so that if this finding was considered as the most important in their recognition as of thyroid origin it would be difficult to recognize some of them. In six, a portion of the lobe on the side of the aberrant thyroid was removed. One showed hyperplasia, one showed an adenomatous structure, three showed areas of papillary cystadenoma which were thought to be malignant and of the same character and grade of malignancy as that evidenced in the lateral thyroid




Figs. 1, 2 and 3 (cases 1, 2 and 3).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

examined by palpation and direct inspection, and any portion appearing abnormal was removed.

Even with an incorrect preoperative diagnosis the condition can usually be recognized at operation. In the discrete type that we have seen the surface of the tumor appears coarsely lobulated and divided by vessels much as in the case of the normal thyroid lobe. Smaller ones are usually solid tumors and are quite granular on their surface. Colloid is not usually abundant. In the larger discrete tumors, central areas of necrosis are present. When multiple tumor nodules are found, the same characteristics may be in evidence; but all our cases of this type have shown a distinctive coloring. On exposure of the nodules, bluish black areas are seen alternated with the gray or brownish red contrasting thyroid tissue. This could readily be confused with the metastatic glands of melanotic sarcoma. The dark coloring, however, is due to small areas of hemorrhage. Hyperplastic lymph glands are occasionally seen in association with them. The nodules were found adherent to the internal jugular vein four times, and in one instance a thin portion was left where it was attached to the common carotid artery.

tumor nodules. One showed papillary adenocarcinoma in the nodule in the lobe on the same side.

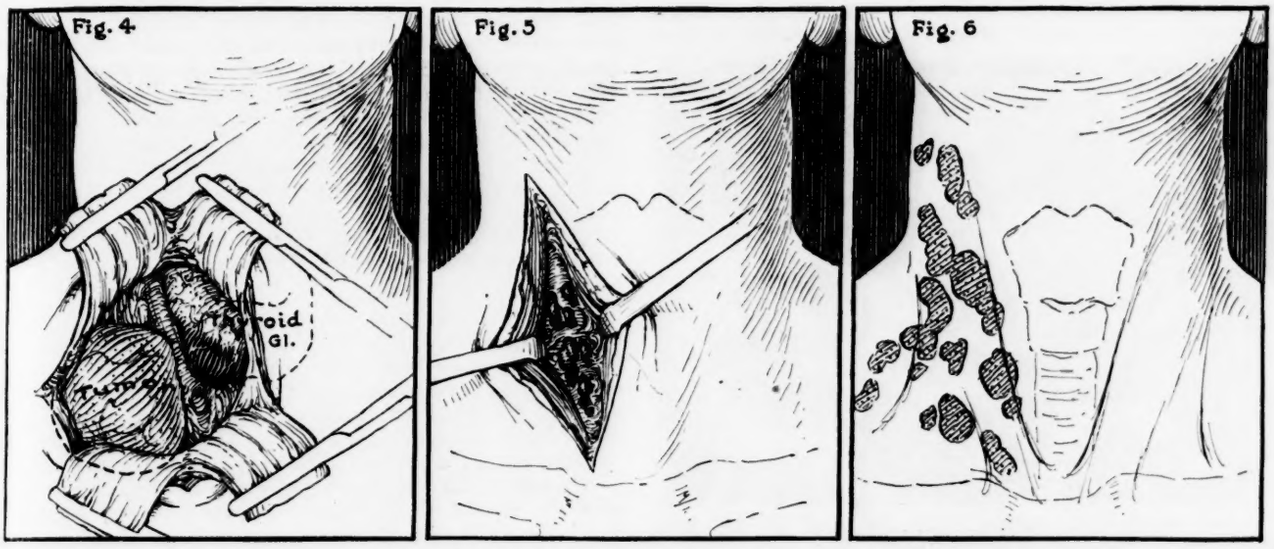
It is, of course, impossible to state in the four patients that showed the same type of structure in the thyroid gland as in the lateral aberrant thyroid which was the primary site of the tumor. Clute and Warren,[8] in reviewing cases of carcinoma of the thyroid seen in this clinic, found 24 per cent of them showing papillary cystadenoma or papillary adenocarcinoma. It is quite possible that a considerable number of these tumors arise from the lateral anlage of the thyroid which normally atrophies, thus having an origin like that of the lateral aberrant thyroid tumors. The degree of malignancy and the prognosis in these cases of papillary cystadenoma of the thyroid and lateral aberrant thyroid are very similar.

The first four of our patients had no subsequent treatment, while the remaining nine all had considerable postoperative roentgen therapy. In spite of the low grade of malignancy we consider it advisable to give all of them this treatment after removal of the tumors.

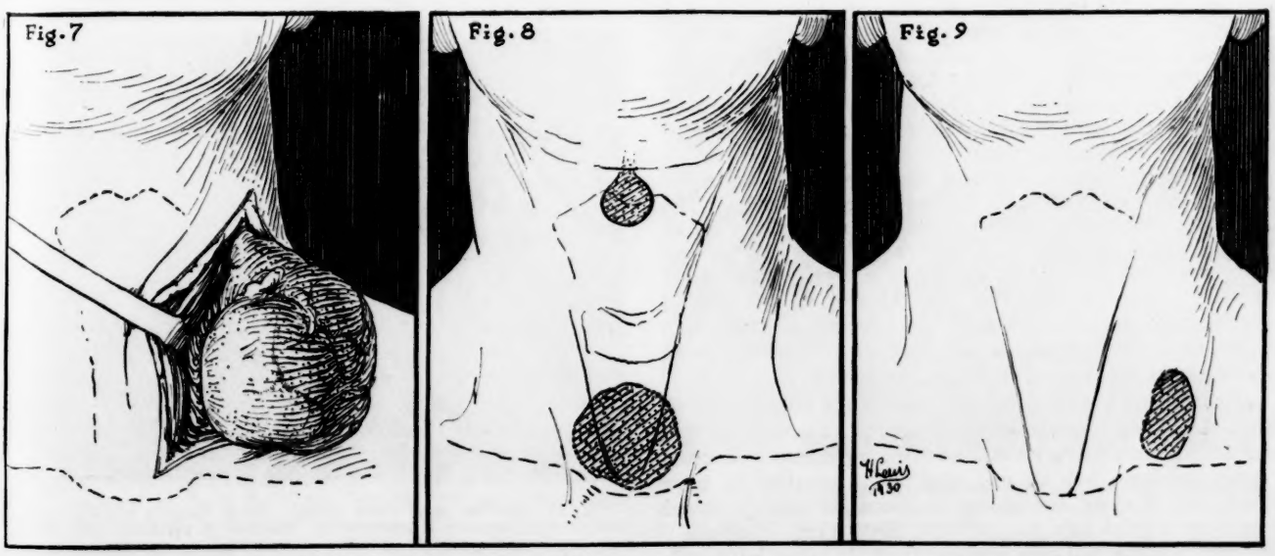
8. Clute, H. M., and Warren, Shields: Cancer of the Thyroid, Am. J. Cancer **15**: 2563 (Oct.) 1931.

They should receive a course of from four to six treatments in a series six months apart during the first year and if there is no evidence of recurrence after that we feel that it is safe to discontinue treatment but we examine them frequently. It must be admitted that there was no difference in results in the patients treated by x-rays and those who did not receive them, but such therapy is an additional safeguard against recurrence.

A follow-up study of these patients has been very instructive and has changed our opinion with regard to the grade of malignancy in these cases. One patient with a simple excision of the tumor is well, without any evidence of recurrence five years after operation. One patient who had local excision together with excision of a similar nodule from the thyroid is well without evidence of recurrence three years after operation and has received no roentgen therapy. One patient with a radical block dissection of the neck received postoperative roentgen therapy and is well two and a half years later. There is one small nodule in the superior pole of the thyroid gland on this side. A biopsy of the gland at the time of operation showed an adenomatous type of structure without involvement with papillary cystadenoma. This patient has a spinal accessory eleventh nerve paralysis. Another patient with a radical dissection of the neck for malignant papillary cystadenoma shows two small nodules two years after operation in spite of repeated roentgen treatment. One patient has a small gland above the incision. This was present immediately after operation and was one of a chain of glands that showed only hyperplasia at the time of operation. All the remaining seven patients are well without evidence of recurrence more than one year postoperatively. One patient was operated on only four months ago, the case being too recent to report. There has been no operative mortality and no patient at present shows any evidence of a tumor possessing malignant characteristics. One patient died sixteen months after operation from a cerebral thrombosis.




Figs. 4, 5 and 6 (cases 4, 5 and 6).—Wide variation in size, number and position of lateral aberrant thyroid nodules.




Figs. 7, 8 and 9 (cases 10, 11 and 12).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

## SUMMARY

Thirteen cases of lateral aberrant thyroid have been reviewed. All showed a similar structure of papillary

cystadenoma. In considering this group of cervical tumors, wish to point out the low grade of malignancy as compared with other epithelial tumors involving the cervical glands. These tumors frequently go unrecognized and may be reported as metastatic carcinoma of unknown origin in the cervical glands. It is believed that neck tumors, outside of the thyroid gland showing papillary cystadenoma, are of lateral aberrant thyroid origin and are the result of arrested

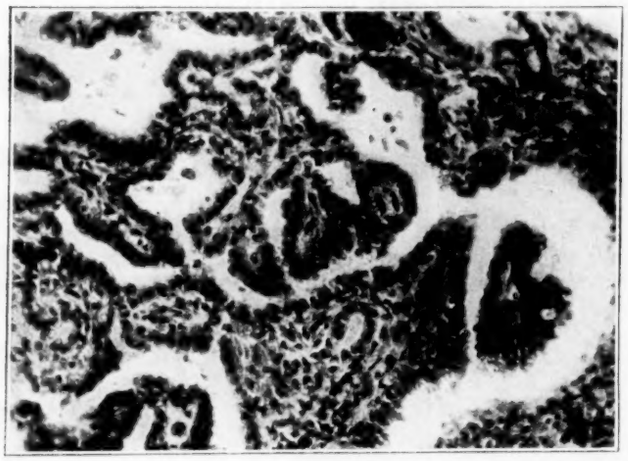


Fig. 10. Typical structure of papillary cystadenoma of a low degree of malignancy. There are few mitotic figures.

development. Satisfactory results were obtained by radical removal followed by postoperative irradiation. It is important to recognize them, since a good prognosis can be given.

## CASE ABSTRACTS

CASE 1.—Mrs. B. H., aged 70, was seen at the clinic in June, 1925, when she complained of a mass the size of a hen's egg in the left side of her neck. It had been present for three years and there had been a slow growth with extension upward and backward. There had been no subjective symptoms. On examination a hard mass was found above the clavicle on the left side (fig. 1). It was somewhat adherent. The thyroid was normal and there was no adenopathy. The diagnoses of tuberculous cervical gland, Hodgkin's disease and lymphosarcoma were considered.

At operation a mass 8 cm. by 5 cm. was found in the left supraclavicular space beneath the sternomastoid muscle. The muscle was retracted medially and the mass was found to be adherent to the surrounding structures including the internal jugular vein, and appeared malignant. The tumor was removed and she made an uncomplicated recovery and she has had no subsequent treatment. The histologic diagnosis was papillary cystadenoma. An examination five years after operation showed no evidence of either local or general recurrence.

CASE 2.—Miss M. R., aged 37, came to the clinic in April, 1929. A subtotal thyroidectomy for exophthalmic goiter had been done sixteen years previously. She apparently had made a good recovery but at one time was reported to have myxedema. A year before our examination she developed dyspnea, precordial pain and auricular fibrillation. Four years previously a tumor had been removed from above her left tonsil. Examination showed an old thyroid scar with a mass 2 inches (5 cm.) in diameter beneath the left angle of the incision (fig. 2). It did not move with deglutition. The right lobe of the thyroid appeared to be enlarged. A preoperative diagnosis of carcinoma of the cervical glands, probably of pharyngeal origin, was made. At operation the tumor was identified outside of the internal jugular vein and common carotid artery, which it displaced medially. The artery was adherent to it. The mass was excised, leaving a small thin portion adherent to the common carotid artery. On exploration of the thyroid, the left lobe appeared of normal size while the right lobe was about three times normal size and appeared hyperplastic. Since the preoperative metabolism test was +30, a right subtotal hemithyroidectomy was done. The pathologist reported that the tissue from the right lobe showed primary hyperplasia with involution and the tumor as papillary cystadenoma in an aberrant thyroid. She died sixteen months after operation with a cerebral hemorrhage, without evidence of recurrence of the tumor.

CASE 3.—Miss E. T., aged 20, came to the clinic in November, 1926, complaining of enlarged glands in the right side of her neck noticed one week previously. She had noticed no symptoms related to them. She had lost 20 pounds (9 Kg.) in two years. Examination showed a firm gland just behind the lower insertion of the right sternomastoid muscle (fig. 3). At operation a tumor an inch and a half in diameter was removed from this position. It was not adherent. It presented certain characteristics of thyroid tissue. The thyroid gland was normal and not involved with the tumor. The pathologist reported it as papillary cystadenoma. She received no subsequent treatment and has had no evidence of recurrence in five and one half years.

CASE 4.—F. W., a physician, aged 67, was seen in 1927 because of a tumor in the right side of the neck which had been present for twenty years without change in size. A diagnosis of adenoma of the right lobe of the thyroid was made. At operation outside of the thyroid under the sternomastoid muscle was a large, adherent mass 8 cm. by 5 cm. by 4 cm. (fig. 4) which contained a yellowish, mucoid fluid and was made up of a papillary-like structure. There were many veins scattered over the surface of the tumor. It was removed, following which the right lobe of the thyroid was exposed. A similar body 1 inch (2.5 cm.) in diameter was found in the inferior pole. No connection between the two could be demonstrated. The pathologist reported both as papillary cystadenoma. This patient received no subsequent treatment. Three years after operation there was no evidence of recurrence and no nodules could be palpated in the thyroid gland.

CASE 5.—Mrs. B. B., aged 41, was seen in March, 1928. In 1921 a left hemithyroidectomy for exophthalmic goiter had been performed and in 1924 a subtotal thyroidectomy was done because of persisting symptoms. One year previously a small recurrent nodule was removed which was reported as an aberrant thyroid. Eight weeks previous to our examination a lump appeared to the right of the larynx. On examination a nodule 1 cm. in diameter was found in this position. There were clinical evidences of myxedema but the metabolism test was normal. At operation, all the deep cervical chains of lymph glands on the right side were found to be enlarged and firm with the same appearance as the lump previously described (fig. 5). They involved the internal jugular vein, so that in doing a radical dissection the vein was removed. All glands between the clavicle and the angle of the jaw were removed,

Fig. 11.—Section of aberrant thyroid tissue showing papillary cystadenoma with invasive characteristics. Strands of epithelial cells can be seen invading the stroma. Positive identification as an aberrant thyroid can be made by the presence of colloid in the section.

including some from the occipital triangle. The pathologist reported these glands as showing papillary cystadenoma or multiple aberrant thyroid nodules. He believed that they were definitely malignant. The patient received postoperative roentgen therapy and two years after operation only too small lymph glands are palpable. She has developed mild hypothyroidism.

CASE 6.—Miss F. K., aged 21, came to the clinic in September, 1927, because of enlarged cervical glands. These had been noted six months previously and had gradually increased

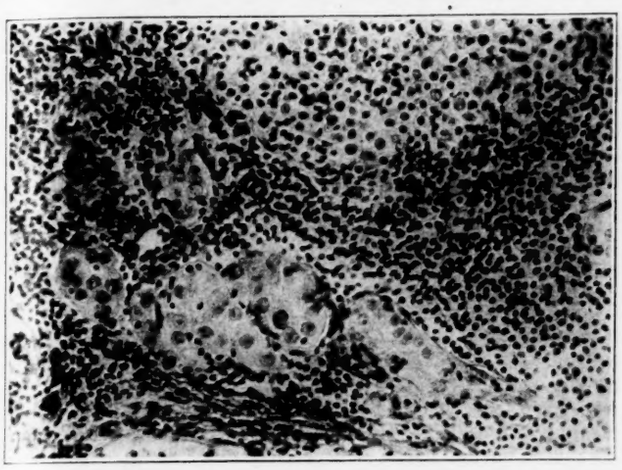


Fig. 12.—Invasion of a lymph gland by papillary adenocarcinoma from an aberrant thyroid. A few mitotic figures can be seen.

in size. On examination numerous glands could be palpated in front of, beneath and behind the right sternomastoid muscle (fig. 6). Each was discrete and movable. A diagnosis of Hodgkin's disease was made but biopsy showed papillary cystadenoma or aberrant thyroid. A radical block dissection was then carried out, the internal jugular vein and all palpable glands being removed. It was believed that the glands extended farther beneath the clavicle into the chest. The right lobe of the thyroid was exposed but was not involved. A portion was taken for microscopic section which showed no evidence of a similar structure to that in the glands. She received extensive postoperative roentgen therapy and three years after operation nodules could not be felt in the right side of her neck and her general condition was good. One small nodule could be palpated in the superior pole of the right lobe of the thyroid which was thought to be adenomatous in character. She had a paralysis of the right trapezius muscle.

CASE 7.—Miss H. B. J., aged 21, seen in April, 1929, stated that a gland had been removed from the left side of her neck eight years previously. Two years before our examination the glands had returned and had slowly increased in size. Two weeks before, a second biopsy was done and was reported as showing hyperplasia of the thyroid tissue. On examination there was a mass of confluent glands varying from 1 to 3 cm. in diameter and extending along the posterior border of the left sternomastoid muscle over its entire extent. A roentgenogram of the chest showed no evidence of metastases. A diagnosis of papillary cystadenoma or aberrant thyroid was made. A radical dissection of the neck was carried out, displacing the sternomastoid laterally; the internal jugular vein and the common carotid artery lay on the surface of some of the glands as well as medial to them. All the glands were excised. They resembled thyroid tissue. The left lobe of the thyroid, while not connected with the gland, contained several firm nodules similar in appearance to the lateral nodule. A left hemithyroidectomy was done. The pathologist reported the thyroid portion as showing papillary cystadenoma. The lymph nodes and lateral masses were also of papillary cystadenoma but were thought to be malignant. She received postoperative roentgen therapy and one year after operation there was no evidence of any swelling in the neck.

CASE 8.—Miss A. V., aged 17, came to the clinic in February, 1930, because of a swollen gland. This had been present for eight years without noticeable change in size. She associated pain and aching in this area with the gland. Examination of the tonsils showed a low grade infection. In the right submaxillary triangle, just behind the angle of the jaw, was a firm, discrete gland which was movable. A diagnosis of chronic tonsillitis and of a tuberculous cervical gland was made. At operation the sternomastoid was found over the mass which was opposite the upper border of the larynx. On exposure it appeared to be thyroid tissue. It lay lateral to the internal jugular vein and common carotid artery but a fibrous band could be demonstrated passing over the vein between the tumor mass and the superior pole. The tumor was removed, together with a portion of the superior pole. Several small lymph nodes in the region of the tumor were removed. The pathologist reported both the portion of thyroid tissue from the superior pole and the tumor mass to be papillary cystadenoma. The lymph nodes around the tumor showed only hyperplasia. One month after operation a small nodule could be felt just above the incision. The patient received postoperative roentgen therapy and one year after operation the small nodule had not changed. There was no evidence of other extensions or of a recurrence.

CASE 9.—Miss R. F., aged 11, came to the clinic in January, 1930, because of lumps in the right side of her neck. These had appeared one and a half years previously. A year before, tonsillectomy had been done without benefit. Nine months previously a biopsy was done and the gland was reported not malignant. Three months before, a second biopsy was done which showed papillary cystadenoma. Previous to our examination she received several roentgen treatments with some decrease in the size of the lumps. All the glands of the right cervical chain were enlarged and varied in size from 1 to 5 cm. in diameter. The thyroid gland could not be palpated separately. A radical dissection was done, removing the internal jugular and all of the glands from the mastoid process to the clavicle below. On the posterior surface of the right lobe of the thyroid was a small cluster of similar tumor masses in the area of the recurrent laryngeal nerve. The entire right lobe and part of the isthmus were removed after isolation and preservation of the recurrent nerve. The pathologist reported this as papillary adenocarcinoma. The patient received postoperative roentgen therapy and one year after

**Fig. 13.—Carcinoma of aberrant thyroid origin but of relatively slow growth. Identification depends on the gross characteristics and the finding of papillary cystadenomatous areas.**

operation no glands can be felt and the left lobe of the thyroid appears soft and pliable.

CASE 10.—L. L. B., a man, aged 52, seen in April, 1930, stated that a lump had appeared above the left clavicle six years previously and had slowly grown in size. It had given no symptoms. At examination there was a large firm tumor 4 inches (10 cm.) in diameter in the left superclavicular region (fig. 7). It appeared regular in outline and did not move when the patient swallowed. The mass was found beneath the sternomastoid muscle and lay lateral to the internal jugular vein. It was cystic in character. No projections were found

descending toward the thyroid gland or to the pharynx. The thyroid was normal. The operative diagnosis was branchial cyst. The pathologist reported this as papillary cystadenoma arising in aberrant thyroid tissue. The patient received postoperative roentgen therapy and there is no evidence of recurrence one year after operation.

CASE 11.—I. B., a man, aged 32, was examined in June, 1930, because of swellings in the neck. For two years he had noticed a round, nontender swelling in the suprasternal notch. There was a second smaller swelling in the midline under his chin. On examination a cyst 2 by 2 cm. was demonstrated at the level of the hyoid bone in the midline. There was a second swelling 6 by 6 cm. in the suprasternal notch which was freely movable and firm (fig. 8). The diagnosis of thyroglossal cyst and dermoid cyst was made. At operation the upper swelling proved to be a typical thyroglossal cyst, and it was removed with a radical operation. On exposure of the lower mass it was found to be dark blue, coarsely lobulated and cystic. It was located above the sternothyroid and sternohyoid muscles and appeared to have a small pedicle extending below them. The thyroid gland was not involved. There were no other glands. The pathologist reported the upper tumor to be a thyroglossal cyst and the lower one a papillary cystadenoma in an aberrant thyroid. The patient has received postoperative roentgen therapy and has had no recurrence of his thyroglossal cyst. There is no evidence of recurrence in the lower part of his neck one year after operation.

CASE 12.—Miss M. F. T. P., aged 48, was examined in July, 1930, because of deafness, sugar in the urine and indigestion. Ten months previously she had noticed a lump in the left side of her neck, and it had increased slightly since that time. On examination she was poorly nourished and there was a fusiform, nontender gland 3 by 2 by 2 cm. beneath the lower attachment of the left sternomastoid muscle (fig. 9). It was thought to be characteristic of the sentinal type of gland associated with carcinoma of the stomach. Roentgen studies of the stomach were negative. At operation the tumor was demonstrated beneath the lower portion of the sternomastoid muscle and beneath the omohyoid and in the area lateral to the common carotid artery and internal jugular vein. It was kidney shaped with a definite hilus, was reddish brown, and had superficial blood vessels and lobulation which suggested thyroid tissue. No other glands could be demonstrated. The thyroid gland was normal. The pathologist reported this as papillary cystadenoma. She received postoperative roentgen therapy and ten months after operation there was no evidence of recurrence.

CASE 13.—Mrs. T. C., aged 30, came to the clinic in January, 1931, because of a goiter. She had noticed this swelling two years previously following her last pregnancy. For one year she had noticed increasing nervousness and irritability. There had been no loss of weight and no palpitation nor tachycardia. Her physical examination was essentially negative except for varicose veins and the local condition in her neck. There was a firm, regular mass beneath the insertion of the left sternomastoid muscle on the clavicle. A second nodule could be palpated in the upper pole of the left lobe of the thyroid. The right lobe felt normal. A preliminary diagnosis of metastatic carcinoma was made and a fluoroscopy of the stomach done to rule out this site as the primary origin of the tumor. This showed no evidence of disease. The subsequent preoperative diagnosis was aberrant thyroid. There was insufficient evidence for a diagnosis of hyperthyroidism. At operation the lower tumor was found behind and lateral to the internal jugular vein. In addition to the previously palpated mass many of the deep cervical lymph glands were found enlarged by the same type of tumor. On exposure they had a deep, blackish tint and were smooth in outline. The glands were removed by a radical block dissection of the left side of the neck, the internal jugular vein being removed. Following this, the tumor was removed from the upper pole of the left lobe of the thyroid. The right lobe was normal. The nodule in the thyroid appeared to have the same characteristics as those of the lateral cervical tumors. The pathologist found the thyroid nodule to be malignant, papillary cystadenoma and reported the same type of structure in all the lymph nodes. There was invasion of the blood vessels in these nodules. This last operation was performed four months ago and she is at present receiving roentgen therapy.

605 Commonwealth Avenue.

## ABSTRACT OF DISCUSSION

DR. C. A. ROEDER, Omaha: When a ligature is placed on the superior thyroid artery, there often is an impulse shooting up the sympathetic plexus to the superior cervical ganglion, which is connected with the first, even the second spinal nerve. From here there is a spill-over into the sensory root of the trigeminal, producing pain in the lower teeth. That might be called a thyromandibular reflex. This is of some importance because the pain occassionally may persist for several weeks. The vagopinna reflex is of extreme importance because it indicates that the internal branch of the superior laryngeal nerve is involved in a ligature or clamp. This reflex passes into the ganglion of the trunk of the vagus and on through Arnold's nerve, and ends in Alderman's nerve, producing pain in the lower portion of the pinna, which may persist for several weeks. Traction alone on the superior pole will often produce this reflex. In regard to cases of toxic thyroidism without an increase in metabolic rate, this slide shows a man who had a progressive exophthalmos for one year without any signs of toxic thyroidism. In the meantime, his right orbit was explored by an eye surgeon in search of an orbital tumor. After the condition had been present for one year, the other eye started to protrude and at this time he came into the dispensary, complaining of weakness of only a few weeks' duration. He might have been in the so-called neurocirculatory asthenic state, but he continued his occupation as a truck driver and did not complain of anything during the first year. A girl who had a progressive exophthalmos for eight months or so beforehand, with a negative metabolic rate and no signs of hyperthyroidism or hypermetabolism, the condition being present for six or eight months, now has the other eye protruding. The thyroid is slowly enlarging. The metabolic rate is practically normal, close to zero. Too much reliance must not be placed on one metabolic reading. The average metabolic test in the average hands is of uncertain value and hypermetabolism, hyperthyroidism and toxic thyroidism should not be considered synonymous. In regard to aberrant thyroid, I have never had a case in my experience and naturally cannot say anything about it. This presentation has been most instructive.

DR. WILLIAM BARCLAY PARSONS, JR., New York: I have refused to operate on a number of patients whose symptoms, although closely simulating hyperthyroidism, seemed to be on a basis of psychoneurosis, but who showed a definite preference for hot rather than for cold weather. This is of course not a definite diagnostic point but is often extremely suggestive and may help in reaching a definite diagnosis, as thyroid surgery is not particularly satisfactory in psychoneurotic patients. The evaluation of results in hyperthyroidism, involving as it does individuals of a high degree of nervous organization, is an extremely difficult thing. The vast majority of results that one sees in the literature have been based, unfortunately, on letter reports. Of course in many instances that is all that one can get; but the personal return visit gives one the only accurate idea of what has happened in these cases. In looking over the reports of some cases recently, I was interested to find that a fairly large percentage showed a gradual improvement continuing over a period of time. In about 200 patients, 74 per cent were satisfactory at six months; by one year there were 80 per cent; and at two and three years, this figure had increased to 82 and 89 per cent, the term "satisfactory" being used only for patients with a normal metabolic rate and pulse and a complete return to economic activity. Individuals of age, of long duration of symptoms, with definite cardiac involvement, congestive heart failure, or whatever condition happens to present itself, in my opinion certainly require the graded operations to give them the greatest possible safety. The whole question of malignancy of the thyroid comes into the discussion of tumors of aberrant thyroids. Malignancy of the thyroid is, of course, extremely difficult to diagnose, even microscopically, as there is a large group of borderline cases in which pathologists of considerable experience will not agree on the diagnosis. The removal of adenomas of the thyroid before they have undergone malignant transformation has saved many individuals

from carcinoma, and presumably the same holds true with the similar tumors in the aberrant thyroid tissue.

DR. FRANK H. LAHEY, Boston: It is a confusing situation to any one who has not had previous experience to find dark discolored tumors in the neck and not to realize that they are aberrant thyroids. They are even as dark, sometimes, as the melanotic sarcomas. It is well to realize that this type of aberrant thyroid which occurs up and down the internal jugular, is often the forerunner of a malignant tumor. It probably explains, as well as the branchial remnants, the origin of primary carcinoma in the neck, and indicates definitely the need of the removal of this type of tumor. I have repeatedly made this statement, that, when one fails to cure patients by operation for hyperthyroidism, either the patients did not have hyperthyroidism in the beginning or not enough thyroid tissue was removed. There is a group of patients in whom a condition exists which simulates thyroid disease and concerning which our medical department has been warning us of late. These are the patients with hypertension. The patient with hypertension has stare and frequently a little exophthalmos; he often has tachycardia and myasthenia and he has a slightly elevated basal metabolism. It is very easy, if he has a goiter, to operate on him under the diagnosis of hyperthyroidism. Therefore, all patients who are borderline patients without striking clinical evidence of hyperthyroidism and who have hypertension should be under suspicion that their symptoms are due to hypertension and not to hyperthyroidism. The same thing is true of neurotic patients, whatever the origin of their condition may be. All patients who lack frank clinical evidences of hyperthyroidism should be under suspicion that they are not patients suffering from hyperthyroidism, and those are the patients in whom basal metabolism determinations should be made repeatedly, and who should have established whether their metabolism remains persistently elevated day after day or tends toward normal. Certainly if one would maintain in a thyroid clinic a series of good results, one must be highly critical of the patients who lack striking clinical evidence of the disease. As to how much thyroid tissue to remove, when a man talks about removing four fifths of the thyroid or five sixths of it, it means that he has not had enough experience in thyroid surgery. There is no fixed rule about how much to remove. One should leave a good deal of thyroid tissue in young children because they need their thyroid tissue for development and they mustn't get myxedema. One should leave a good deal of thyroid tissue in elderly people because old age is related to a slowing up of the activity of the thyroid. Of all the patients who have exophthalmic goiter of the hyperplastic type, in about 90 per cent or a little more the gland will involute with iodine in the form of compound solution of iodine given preoperatively. If one does radical removals in this group in which the gland has involuted well, one will have a high percentage of myxedema. In the remaining 10 per cent in whom the gland does not involute, if one does not do radical removals one will have a high percentage of persistent hyperthyroidism. All this question of hyperthyroidism is based on experience with trial and error. Hyperthyroidism is a disease associated with intangible nervous symptoms. The borderline cases are susceptible of many errors. Therefore, the physician must have in mind always that the burden of proof of conditions due to hyperthyroidism in borderline cases is on himself, and when in doubt he should not operate on these patients on suspicion. They must show definite clinical evidence or persistently elevated basal metabolism rates. When they show that, when one does radical operations on the uninvoluted thyroids and conservative operations on the involuted kind, then one will get good results and one will not have these annoying neurotic patients returning repeatedly and complaining that they are not well postoperatively.

DR. R. S. DINSMORE, Cleveland: I have found that if a patient comes into the hospital and the pulse curve drops to normal over night, the case is not likely to be one of hyperthyroidism. The typical hyperthyroid patient will have an afebrile tachycardia which will gradually come down to a base line. It is well to remember in a case of acute hyperthyroidism and delirium that, if the delirium has lasted over a period of seventy-two hours, a fairly large percentage of these patients will die in spite of all therapy. I have made it a rule never to operate on a patient who has had a recent psychosis or delirium, but to wait for at least three or four weeks.

DR. MICHAEL G. WOHL, Philadelphia: Among embryonal tumors of the neck, aberrant thyroid is the most uncommon and is least often diagnosed. Aberrant thyroid usually implies a tumor that is found along the path of embryologic development of the thyroid. This excludes thyroid tissue found in the pleura, abdominal cavity or bone. This is a striking anomaly of pathologic thyroids, especially when a single colloid goiter may be harmless for years and give rise to metastases. In 1917, I was able to collect from the literature reports of twenty cases of tumors of the lateral aberrant thyroid, and I added one case of my own. Billings and Paul since then have reported an additional case and have brought the total number up to thirty-four. The patient whom I had under observation was a girl, aged 19, with a small lump on the right side of the neck, of two years' duration. It was located on a level with the hyoid cartilage beneath the anterior edge of the right sternocleidomastoid muscle. It consisted at operation of five nodules, varying in size from that of a pea to that of a pecan. The microscopic diagnosis was adenocarcinoma. The patient was operated on, the tumor removed, and she was symptom free for two years, after which she was lost to observation. From a theoretical point of view, the occurrence of these tumors in misplaced thyroid tissue emphasizes the frequency with which embryonal tissue is capable of proliferation. The answer, however, is not furnished as to why in one case it proliferates to form a benign adenoma and in another instance a rapidly growing carcinoma. It is worth emphasizing that in most instances of pathologic changes of the lateral thyroid, the thyroid gland proper is healthy and remains free from involvement, except in the case mentioned by Dr. Cattell, in which he said that there was an exophthalmic hyperplastic proliferation in disease of the main thyroid. It is also important to bear in mind that in finding carcinoma in the lateral aspect of the neck, one should rule out the possibility of its being metastatic of the thyroid itself. Although lateral aberrant thyroid is rare, it must be taken into consideration in the differential diagnosis of tumors of the neck. Dr. Cattell is to be congratulated for having the largest single collection of any one of whom I know. I am glad to hear him state that he was able to make a preoperative diagnosis. In making a diagnosis of a lateral aberrant thyroid, one must consider other conditions, as Hodgkin's disease, lymphosarcoma or some other condition of the lymph node.

DR. M. S. MUSKAT, Cincinnati: The basal metabolic rate can be specific of hyperthyroidism if properly and carefully executed. Tests must be performed on at least two different days before one issues a report. There are two points that may help to establish a diagnosis. In the first place, many patients come to the physician after already having taken iodine in one form or another, and unless a specific question and investigation is made one may not determine that. The patient will give a history of nervousness, loss of weight, tachycardia, and so on, but he may have had iodine recently; if following the recent ingestion of iodine, a basal metabolic test is made, the rate may be normal or even subnormal, even though it originally had been plus 15 or plus 20. Perhaps after the patient has taken iodine for only a week, the basal metabolic rate is within so-called normal limits or on the normal side. It is important to find out whether the patient has had iodine. In the borderline, doubtful cases, there is another agent that may sometimes be of value. After the patient has had bed rest, bromides, phenobarbital or some other sedative drug, or has been given digitalis to determine whether there is some heart condition, then one should give iodine as a definite therapeutic test, anywhere from three days to two weeks, and should check the patient's basal metabolism rate during that time. The basal pulse rate also should be watched as well as the pulse pressure relationship, and that may give one an additional aid to prove or disprove the presence of hyperthyroidism. There are many patients who have a basal metabolism rate of minus 15 or minus 20 or even more, who are apparently normal. At least it is conceivable that these persons may get hyperthyroidism and their basal metabolism rate may be found to be plus 5 or plus 10 or plus 15, which is considered normal but for them it may be a plus 20 or plus 30 elevation. So I think that here again there must be a definite iodine therapeutic test, checked by the basal metabolism rate, which may be of value in ruling out such cases. I have observed definite cases in which the patients have been benefited by such management.

# SUPRAPUBIC PROSTATECTOMY WITH CLOSURE OF THE BLADDER *

ALEXANDER HAMILTON PEACOCK, M.D.
SEATTLE

[EDITORIAL NOTE.—This paper, together with the paper of Dr. Edwin Davis and the discussion, concludes the symposium on prostatectomy. The papers of Drs. Lowsley and Kirwin and Dr. T. M. Davis were published last week.]

The primary object of prostatectomy in benign hypertrophy is to remove the obstructing adenomatous gland and to reestablish free urethral drainage with the least shock and the lowest mortality.

Before these operations are started a complete study of the patient with days or weeks of preparation is necessary with functional tests, urographic studies, the cardiac estimations, and getting the gastro-intestinal tract into good functional condition. This phase of prostatectomy, its preparation, is the foundation for the

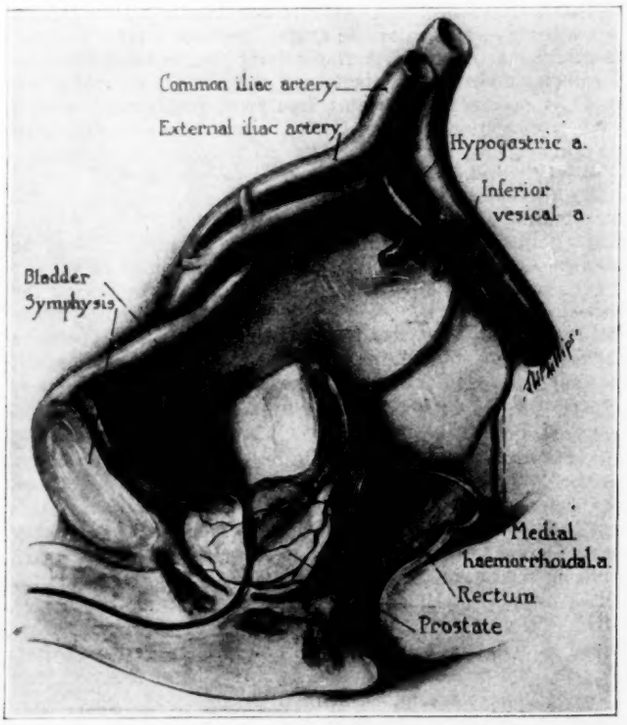



Fig. 1.—Sagittal section of the prostate gland, showing its chief blood supply.

tremendously lower mortality over that of twenty-five years ago.

And with each year have come refinements in surgical technic which have been instrumental in producing better functional results, reducing complications, making convalescence more comfortable and operations safer. In the past five years two advances have been made in suprapubic surgery of the prostate; namely, hemostasis of the prostatic cavity by suture, and closure of the urinary bladder. The surgeons who have made these contributions are Thomson-Walker, Deaver, Lower, Judd and Harris.

It is my object in this paper to show that this operation of suture and closure is not unusually difficult, that special instruments are not necessary, and that the technic is surgically correct. The most gratifying result of suturing of the capsule is the immediate control of bleeding. The chief blood supply of the prostate is furnished by the inferior vesicle and the medial branch of the hemorrhoidal arteries. These vessels

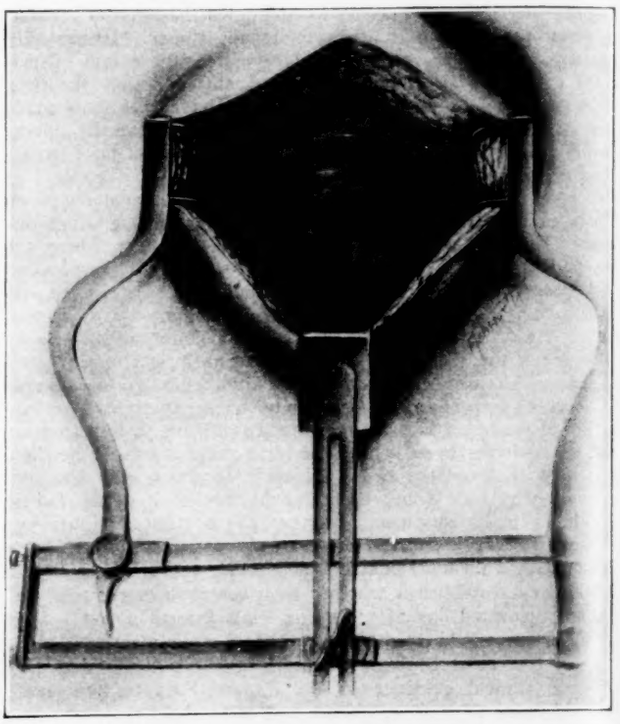


Fig. 9.—Peacock self retaining bladder retractor in position.

enter the prostate laterally near the base of the trigon and below the ureteral orifices. Once in the capsule they curve around the prostate and become almost submucous. This accounts for hemorrhages that not infrequently accompany prostatic hypertrophy.

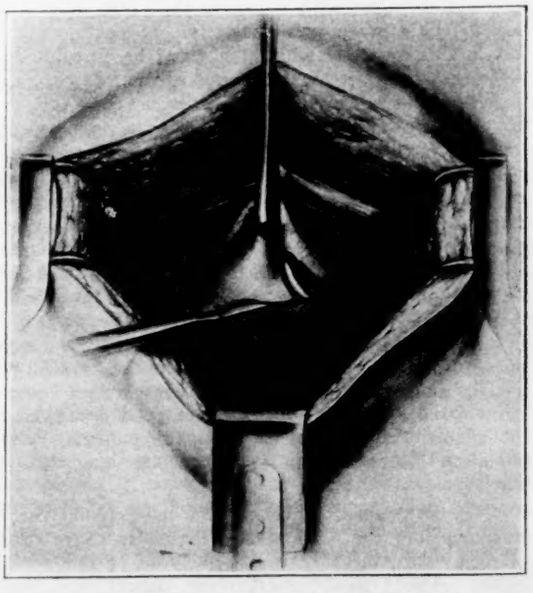


Fig. 10.—The prostate held with a tenaculum and the mucous membrane incised. A catheter marks the internal urethral orifice.

In order to close the bladder, two conditions must be obtained: first, complete hemostasis and, second, unobstructed urethral drainage. How have these conditions been brought about?

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

* Because of lack of space, this article is abbreviated here by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

The enucleation of the hypertrophied prostate can be accomplished by separating the gland in toto or into its several parts by means of the fingers or instruments. Some surgeons, as Judd, grasp the prostate with a tenaculum and with a knife or scissors cut the mucous membrane overlying the central lobe; while others tear through the internal urethral orifice, find the capsule and gradually work the prostate free. After the gland has been lifted out of its capsular bed, a cavity is left with ragged edges. This cavity is outlined by a rim which consists of mucous membrane of irregular thickness and is usually torn laterally in several places.

The early method of controlling bleeding from this cavity was packing it for a few minutes, and then depending on the normal contraction of the prostatic capsule, plus clotting. Packing the capsule with strips of gauze was next in order; then rubber bags inflated with air or water of the Pilcher or Hagner type were employed to compress the edges of the capsule against the prostatic bed. At times pressure from bags or gauze fails completely to control bleeding. These agents at times hold the edges of the capsule apart and thus interfere with its normal shrinkage.

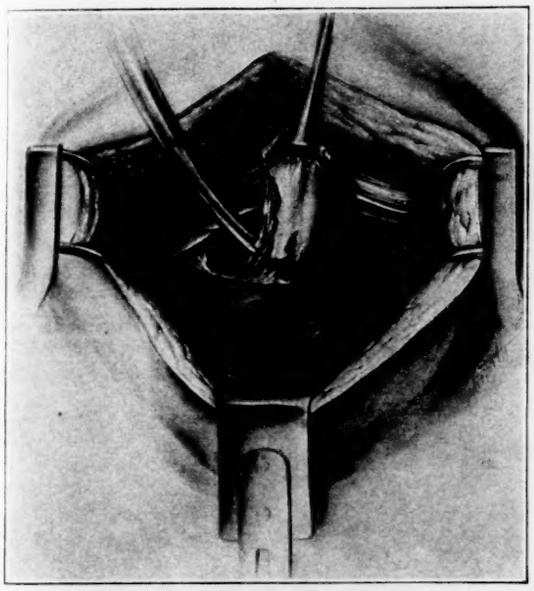


Fig. 11.—Removing a fibroma with scissors.

The next improvement was to bring forward an edge of the capsule and suture it to the end of the severed urethra. The first published article on this step was by Deaver.[1] A few months later S. Harry Harris [2] of Sidney, Australia, gave his technic in the *Medical Journal of Australia*. The various methods of suturing the capsule in their order of publication are as follows:

1. Deaver [1] has an assistant insert a finger in the rectum and push up the prostatic floor. The edges of the capsule are grasped and sutures are made radially to the severed urethra. A soft rubber catheter in the urethra and a suprapubic drainage tube complete the operation. The latter tube is removed when the urine clarifies. Healing is reported in from ten to fifteen days.

2. Lower [3] for years has closed the urinary bladder after operations for calculus and tumor. He handles the prostatic cavity by placing a catheter in the urethra. He places one transverse suture through the edges of the capsule below and three above it. These sutures consist of a thread with a small curved needle on each end; one needle starts at the median line and makes a

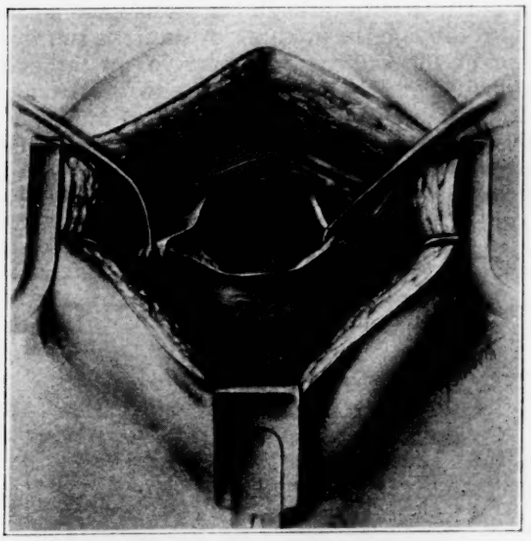


Fig. 12.—The prostate has been enucleated, leaving a cuplike cavity. The edges of the capsule are held with a tenaculum.

dot and dash through the prostatic bed to the right, while the other is similarly placed on the left.

3. Judd [4] has popularized the open method of prostatectomy, making a long incision, and wide retraction of the bladder. The prostate is held with a tenaculum and largely enucleated with the aid of instruments. Interrupted chromic sutures are placed in the edge of the capsule. After insertion of a catheter in the urethra, the bladder is closed with a running suture.

4. Harris [5] first inserts two lateral sutures in the edge of the capsule. He next puts a suture in the median

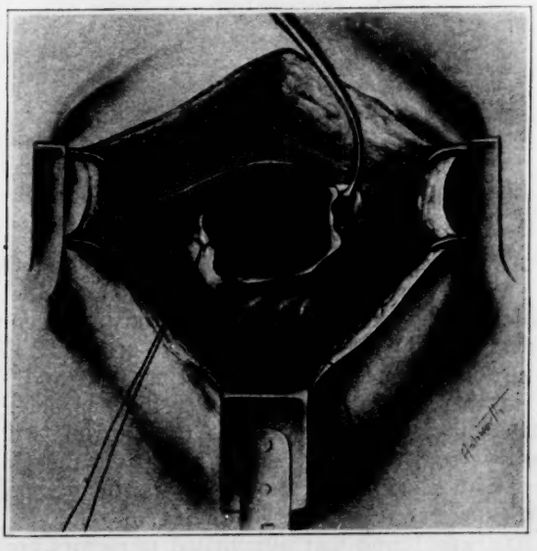


Fig. 13.—Suturing the prostatic bed and capsule.

capsule edge through the floor to the end of the urethra. When tied, this draws a tongued shaped piece of capsule forward. Harris stresses this bringing of the

1. Deaver, J. B.: Closure of Prostatic Bed in Suprapubic Prostatectomy, Ann. Surg. **88**: 118 (July) 1928.
2. Harris, S. H.: M. J. Australia **2**: 288 (Sept. 8) 1928.
3. Lower, W. E.: Complete Closure of Bladder Following Prostatectomy, J. A. M. A. **89**: 749 (Sept. 3) 1927.
4. Judd, in Cabot, Hugh: Modern Urology **1**: 636.
5. Harris, S.: Brit. J. Urol. **1**: 285 (Sept.) 1929.

capsule to the urethra. This part of the operation is not always practical, as the distal portion of the urethra retracts well forward under the pubic arch. The major portion of the prostatic capsule, however, can be tacked down to its new floor and early epithelization of the new urethra is accomplished. Now two transverse sutures are placed anteriorly through the capsule and a catheter is slipped through the urethra. A suture is run through the eye of the catheter and brought up through the abdominal wound. The bladder is now sutured and the incision of the abdominal wall is closed without drainage. Harris depends on Young's boomerang needle and holder to place his prostatic sutures. He also uses a retractor, the blades of which are equipped with electric lights. He reported excellent results in a series of 118 cases at the Pan Pacific Surgical Conference in Honolulu, T. H., in August, 1929.

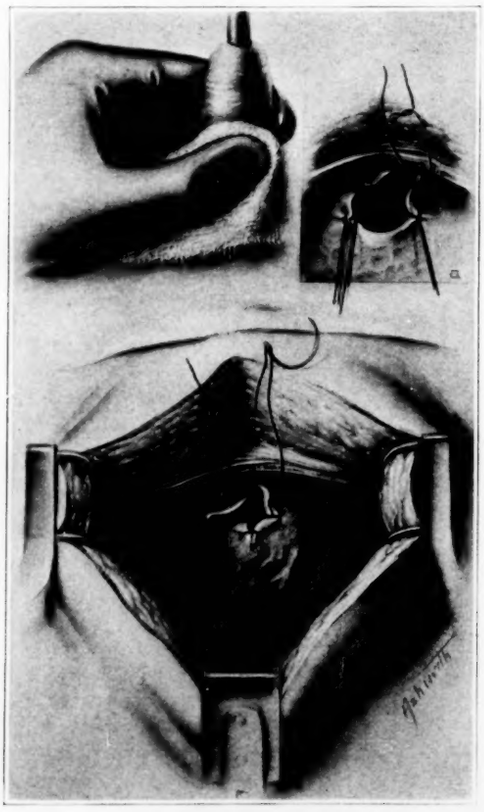


Fig. 14.—Sutures in prostatic capsule reconstructing internal urethral orifice; metal sound in urethra as a guide.

5. All will agree that no operation can be standardized. Wide variations in anatomy, pathology and the condition of the individual tissues call on the ingenuity, experience and judgment of the surgeon. Good exposure is possible in one operating field and very poor in the next. So, in treating the capsule after prostatectomy, different methods of suturing will be necessary from time to time. I have used the Harris technic with some modification in fifty patients, none of whom experienced secondary bleeding.

It has been found that illuminated retractors are not essential to good vision of the prostatic bed. Spinal anesthesia produces a degree of relaxation of the abdominal muscles impossible with any other type of anesthesia. I have modified the self retaining Balfour abdominal retractor by putting on 4 inch L shaped wire blades, which allows the blades to slip under the pubic arch and separate widely the walls of the bladder. It gives a most excellent exposure of the entire bladder. The Young boomerang needle and holder seems almost indispensable in some cases, while in many others an ordinary long needle holder and short curved needle perform just as well or better.

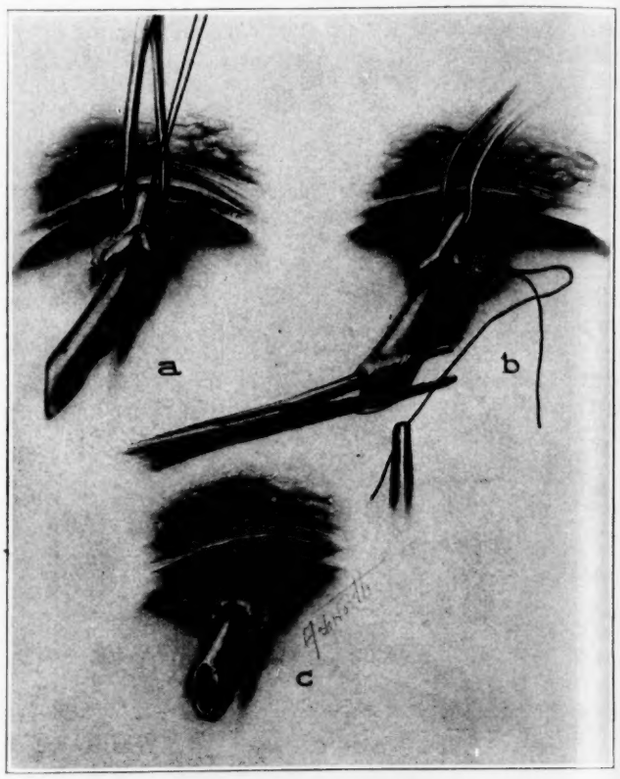



Fig. 15.—Securing the vesical end of an indwelling whistle tip catheter: *a*, one of the prostatic capsule sutures is used for an anchor; *b*, pulling the suture through the eye; *c*, suture tied.

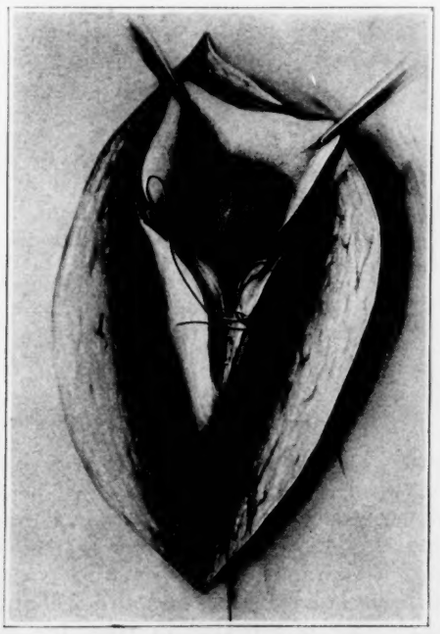


Fig. 16.—Closing the bladder with two layers of Lembert suture.

A number 26 or 28 French whistle tipped catheter gives the best drainage. To anchor it one of the prostatic sutures is used, the ends being passed through the eye of the catheter. As these are of plain catgut, the catheter can be pulled out after three or four days and

a smaller one inserted in its place. The bladder is best closed with a double row of Lembert sutures. No drainage of any kind is employed.

### RESULTS

The operation in the majority of these fifty cases was done in two stages from seven days to five months apart. The average interval was two weeks. Wounds seemed to heal as well after the second stage of the operation as they did at the first.

The average time for the indwelling catheter was ten days. The incidence of epididymitis was much less with the use of the catheter than without it. This is probably due to much better drainage of the bladder.

The incidence of wound leakage was small. When it did occur, it was very slight and usually indicated an obstructed catheter. The comfort of the patient, the freedom from wet dressings, and the saving in gauze and cotton was considerable.

The average time when normal voiding became established was twelve days.

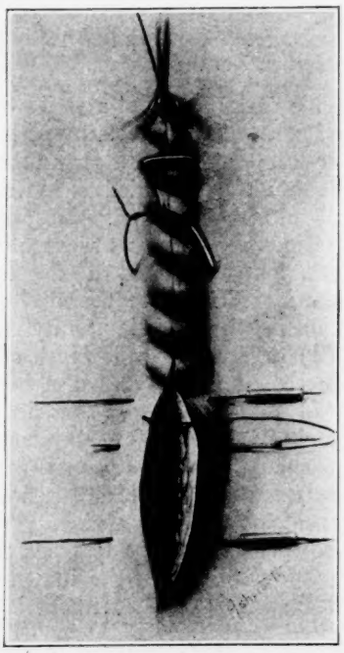


Fig. 17. The skin incision is repaired with interrupted silkworm and dermal sutures, without drainage.

### SUMMARY

1. The success of primary closure of the urinary bladder depends on perfect hemostasis of the prostatic bed and good drainage by catheter.

2. Suture of the capsule is surgically correct and can be performed by ordinary surgical skill and instruments.

3. Primary closure of the bladder affords a shorter and more comfortable convalescence.

4. Suture of the prostatic capsule produces better anatomic and functional results.

5. With this method, postoperative bleeding has been practically eliminated.

6. The sloughing postoperative wound is a thing of the past.

7. Objections raised to closure of the bladder can be refuted by the good results of those surgeons now employing the closed method of suprapubic prostatectomy.

1215 Fourth Avenue.

**Monsters.**—Malformed fetuses have been produced by subjecting the embryo to certain chemicals. Potassium arrests the development of the heart, and sodium produces spina bifida. Scammon wrote that it has been shown that embryonic duplications of all grades and degrees may be produced in certain vertebrate embryos by changes in temperature, by subjection to the x-rays and ultraviolet rays, by pressure, by mechanical separation, by changes in the salt concentration and oxygen content of the surrounding medium, and by a number of other experimental procedures.—Reid, W. D.: The Causation and Prevention of Congenital Heart Disease, *Arch. Int. Med.* **48**:721 (Nov.) 1931.

# SACRAL BLOCK ANESTHESIA IN PERINEAL PROSTATECTOMY

## ITS INFALLIBILITY WHEN ACCURATELY ADMINISTERED *

EDWIN DAVIS, M.D.
OMAHA

It is my purpose in this brief presentation of facts and figures to attempt to justify the title, to the end that sacral block anesthesia in prostatectomy may receive wider recognition, in place of spinal anesthesia and the various forms of general anesthesia, none of which are so free from hazard.

The term sacral block anesthesia, as here employed, refers to the injection of the sacral canal through the sacral hiatus (caudal anesthesia) and, in addition, the injection of the first, second and third posterior sacral foramina on either side. In the total series of 378 cases here reported, each patient received 40 cc. of freshly sterilized solution of procaine hydrochloride 1 per cent through the sacral hiatus, and 10, 8 and 5 cc., respectively, through the first, second and third sacral foramen, on each side. This amount has been employed because it has been found to serve the purpose satisfactorily and without causing any reaction of consequence. Perhaps less would suffice. Details of technic have been purposely omitted since this subject has been covered elsewhere, by a number of authors; more recently and in a complete and detailed manner by Lundy.[1] In no instance in the entire series has any other drug been added to the routine solution of plain, freshly sterilized 1 per cent procaine hydrochloride.

### CONFLICTING OPINIONS IN LITERATURE

An excellent historical summary, dealing with the development of sacral block anesthesia, has recently been published by Bumpus.[2] This, there could be no purpose in duplicating. In the present article I shall make a minimum number of quotations from the literature, sufficient to illustrate certain points. With respect to the efficiency of sacral anesthesia, the outstanding impressions which one has after a detailed review of the literature, are as follows:

1. The opinion is widely prevalent that sacral block anesthesia has a certain inevitable proportion of failure (averaging about 15 per cent).

2. There is a surprising discrepancy in opinion on this subject which may be explained, in part, as the result of a confusion in terms between caudal anesthesia and complete sacral block.

3. In general, those reporting excellent results, with a negligible percentage of failure, are those who have had a wide experience with this method of anesthesia.

Illustrating the proportion of failure to anesthetize by the caudal method are the figures from the Brady Clinic published by Berry,[3] who reported 16 per cent failure in 165 consecutive cases, 140 of which were prostatectomies. Shaw [4] had previously reported (also from the clinic of Dr. Hugh Young) 17 per cent

* From the University of Nebraska College of Medicine.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Lundy, J. S.: Method for Producing Block Anesthesia of Sacral Nerves, Am. J. Surg. **4**: 262 (March) 1928.

2. Bumpus, H. C.: History of Regional Anesthesia in Urology, J. A. M. A. **96**: 83 (Jan. 10) 1931.

3. Berry, G. P.: Caudal Epidural Anesthesia in Perineal Surgery of the Genito-Urinary Tract, J. A. M. A. **90**: 1018 (March 31) 1928.

4. Shaw, E. C.: Epidural Anesthesia for Perineal Prostatectomy, J. Urol. **15**: 219 (March) 1926.

of failure in 100 consecutive cases. These figures, however, do not accurately represent the results obtained by the sacral block method, since in each of these series the anesthesia consisted merely of a single injection through the sacral hiatus (caudal anesthesia), using a small volume of a concentrated solution (20 cc. of 3 per cent solution of procaine hydrochloride). Scholl's [5] paper, published in 1921, reported 10 failures in 150 cystoscopic manipulations, and included the statement that "most writers report a fairly high percentage of failure." Bransford Lewis, in discussing Scholl's paper, estimated his own failures at 15 per cent. In their original publication on the use of caudal anesthesia, in 1916, Lewis and Bartels [6] reported 13 prostatectomies with 3 failures and 68 cystoscopic manipulations with 22 failures. Lynch [7] (1918) reported 80 rectal cases with 16 failures, and Brenner [8] 12 failures out of 120, most of which were rectal cases. The latter author included the statement that "all observers report some percentage of failure." In keeping with these opinions is the statement of Labat,[9] with respect to the simple caudal injection, that, although the percentage of failure may be reduced, "it is obvious that there are failures which are unavoidable and uncontrollable, to which no remedy will ever be brought." Labat, however, makes a sharp distinction between caudal anesthesia and sacral block and states that the latter procedure "never fails to produce the desired result."

Of interest by way of illustrating the discrepancies in the opinion on this subject are the statements by Babcock [10] and by Harris [11] in consecutive chapters of the same volume of Oxford surgery. Estimating the efficiency of "high sacral anesthesia" at only 45 per cent, Babcock adds that "it is evident that it [sacral anesthesia] has such limitations that only very devoted enthusiasts will have the patience to continue its use," while Harris considers that "blocking of the sacral plexus by intrasacral injection is one of the most satisfactory procedures in the field of local anesthesia." They cannot both be right. It is likely, however, that these contradictory opinions may be partially explained on a terminology basis.

It may be judged from the foregoing that the general impression concerning the unreliability of the sacral method may be largely due to the published results following the use of the simple caudal injection, rather than the complete sacral block. Lundy's [12] report (1927), including 318 cases of suprapubic prostatectomy, in which the sacral block method (together with infiltration of the anterior abdominal wall) was employed, shows the excellent results which may be obtained by this method. In this series, 96.5 per cent were successful, in 1.7 per cent supplementary general anesthesia was necessary, while in an additional 1.7 per cent Lundy considers that general anesthesia should have been used. Lowsley [13] has expressed the opinion that the sacral block method gives perfect anesthesia for perineal prostatectomy in 95 per cent of cases. Meeker and Scholl,[14] in 1924, reported a series of 1,817 cases of sacral block anesthesia with 5.33 per cent failure. Of these, 270 were for prostatectomy, with 5.92 per cent failure. The report of Widenhorn,[15] published in 1929, includes 115 cases of prostatectomy, with six anesthesia failures.

5. Scholl, A. J.: Sacral Anesthesia in Urology, J. Urol. **6**: 149 (Aug.) 1921.
6. Lewis, Bransford; and Bartels, Leo: Caudal Anesthesia in Genito-Urinary Surgery, Surg. Gynec. Obst. **22**: 262 (March) 1916.
7. Lynch, J. M.: Sacral Anesthesia, Am. J. Surg. **32**: 57 (April) 1918.
8. Brenner, E. C.: Sacral Anesthesia, Ann. Surg. **79**: 118 (Jan.) 1924.
9. Labat, G.: Brit. J. Anesth. **3**: 5 (July) 1925.
10. Babcock, W. W.: Chapter on Spinal Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1**: 167, 1920.
11. Harris, M. L.: Chapter on Local Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1**: 136, 1920.
12. Lundy, J. S.: Regional Anesthesia for Operations in the Urinary Bladder, J. Urol. **17**: 525 (June) 1927.
13. Lowsley, O. S.: Embryology, Anatomy and Surgery of the Prostate Gland, Am. J. Surg. **8**: 526 (March) 1930.

### PERSONAL EXPERIENCE WITH SACRAL BLOCK ANESTHESIA

My own former impression relative to the efficiency of the sacral block method may be best expressed by the following quotation from a paper I [16] read in 1924:

> There occurs a certain small but constant percentage of failure to obtain complete anesthesia. This percentage decreases as technic improves, yet this fact constitutes probably the most serious objection to sacral anesthesia. There are several factors tending toward poor or indifferent anesthesia, which may be eliminated by careful technic. Certain cases of failure are due to the fact that the operator has not succeeded in introducing the needle through the hiatus and into the lumen of the sacral canal. It is even possible to make the mistake of giving the injection into the subcutaneous tissues dorsal to the sacrum.

This paper included a series of thirty consecutive cases of perineal prostatectomy with seven anesthesia failures, or 23 per cent. At that time a certain percentage of failure was regarded as inevitable, even with the complete block method. In addition to faulty technic, various explanations were offered by different observers. These included (1) anatomic variations, preventing the introduction of the needles; (2) physiologic variations, such as an "immunity" to procaine hydrochloride; (3) decreased permeability of the neural sheaths; (4) increased capacity of the bony canal of the sacrum; (5) failure to use a sufficiently concentrated solution, and (6) an increased amount of fibrous and fatty tissue in the sacral canal, preventing intimate contact between the procaine hydrochloride and the nerve trunks. The real and only reason for these failures, however, is failure to place the needles accurately and unquestionably in the lumen of the canal and of the foramina. This statement is borne out by the figures cited hereafter.

The series here presented consists of 378 consecutive cases of perineal prostatectomy, similarly handled. Each patient, without exception, received sacral block anesthesia, consisting of a caudal injection, and injection of the first, second and third posterior sacral foramina, as already outlined. As indicated in table 1, the percentage of anesthesia failure, which was very high early in the series (20 per cent in the first twenty-five cases), has shown a gradual decrease during the first hundred cases, and has now come to be nil. The total number of failures in the first 100 cases was 12, of which 9 occurred during the first 50. Since the first 100 cases there has been one failure only (case 149), and, following this, there have been 229 consecutive cases without a failure, in a series which is as yet uninterrupted.

As here employed, the term "sacral anesthesia failure" means that supplementary inhalation anesthesia was necessary. Every case in which nitrous oxide or ether was employed has been counted, whether used

14. Meeker, W. R., and Scholl, A. J.: Sacral Nerve Block Anesthesia, Ann. Surg. **80**: 739 (Nov.) 1924.
15. Widenhorn, H.: Die Sakkralanästhesie in der urologischen chirurgie, Deutsche Ztschr. f. Chir. **216**: 163, 1929.
16. Davis, Edwin: Perineal Prostatectomy, with Particular Reference to Sacral Anesthesia and to Hemostasis, J. A. M. A. **83**: 1988-1993 (Dec. 20) 1924.

throughout the operation or whether "only a few whiffs" were given, and whether the general anesthesia was necessary because of actual pain or merely for "psychic" reasons. During the 365 operations in which the anesthesia was considered successful there was neither an ether mask nor a nitrous oxide apparatus in the room. There is therefore no occasion for classifying these anesthesias as successful and "fairly successful." Each anesthesia was a complete success or a complete failure, as determined by whether or not the operation was completed without supplementing inhalation anesthesia.

The feature of practical interest is the gradual decrease in the percentage of failure during the first hundred of the series. In all cases the same operation was performed and the same position on the table was employed. Also the same amount of the same drug in the same concentration was used, as well as the same type of needle and, as nearly as it was humanly possible to determine, the same technic of injection.

TABLE 1.—*Failures in Sacral Block Anesthesia in Perineal Prostatectomy* *

| | Failures | |
|---|---|---|
| Analysis of First 100 Cases: | Number | Percentage |
| First 25 cases | 5 | 20 |
| Second 25 cases | 4 | 16 |
| Third 25 cases | 2 | 8 |
| Fourth 25 cases | 1 | 4 |
| Total first 100 cases | 12 | 12 |
| Analysis of Total Series of 378 Cases: | | |
| First 100 cases | 12 | 12 |
| Second 100 cases | 1 | 1 |
| Third 100 cases | 0 | 0 |
| Last 78 cases | 0 | 0 |
| Total 378 cases | 13 | 3.4 |

| | |
|---|---|
| Total number of failures in last 278 cases | 1 (0.35 per cent) |
| Total number of failures in last 229 cases | 0 |
| Time necessary for complete block: | |
| Average | 12½ minutes |
| Maximum | 30 minutes |
| Minimum | 4½ minutes |

* Identical technic in all cases.

That is to say, there has been no deliberate modification of technic. The same anesthetist has performed the injections in all cases. Therefore, since all these controllable factors have been constant, the only permissible conclusion is that success or failure is wholly dependent on whether or not the needles have been accurately placed within the caudal canal and the sacral foramina, and on no other factor. There is therefore no occasion for further reference to the percentage of inexplicable failure with sacral block anesthesia. If the anesthetist searches, and continues to search, for the foramina until he finds them and knows that he has found them, the anesthesia will be successful. The percentage of success is therefore a matter of practice and perseverance.

## OBJECTIONS AND CONTRAINDICATIONS TO SACRAL BLOCK ANESTHESIA

It may be stated without reservation that the generally accepted opinion is that sacral block anesthesia is free from risk, as far as immediate mortality and remote complications are concerned. Furthermore, this statement with reference to freedom from risk applies not only to series reported by those who have had an extensive experience with the sacral block method but also to results obtained by those who employ this method only occasionally. I believe that no one who is informed would object to sacral anesthesia on a hazard basis. Including the series here presented and the total number of simple caudal injections given for various cystoscopic manipulations, my associate, Dr. C. A. Owens, and I have employed this method in well over 1,000 cases, without a fatality, and without a reaction of serious consequence. A discussion of the risk of sacral anesthesia is not complete without mention of the remote possibility of puncture of the dural sac or puncture of a blood vessel. The dural sac terminates at the level of the second sacral segment, so that puncture by a straight needle, introduced through the caudal hiatus, is a mechanical impossibility in the normal case. In order to be safe in cases presenting possible anatomic variations, however, the routine of aspiration before injection should be employed in each instance. I have seen tapping of the dural sac occur once in well over a thousand cases. The same precaution (preliminary aspiration) should be employed with the needle in each foramen, to exclude the possibility of intravenous injection.

The chief objection to the sacral block method is its supposed inefficiency and unreliability. There is no doubt that this objection to sacral anesthesia applies in certain other forms of pelvic surgery, particularly in those procedures involving traction on intraperitoneal organs. Employed in perineal prostatectomy, however, it may be demonstrated beyond question that sacral block anesthesia is wholly and entirely dependable, and that opinions to the contrary are erroneous, and based on too limited experience. Table 1 would seem to establish positively the fact that anesthesia failures (in this particular operation) are dependent on inaccurate technic rather than on some defect inherent in the method itself.

Another objection, from the point of view of the busy surgeon, is that too much time and trouble is supposed to be involved in making the injections into the caudal canal and the foramina (seven injections in all). There are two answers to this objection. In the first place, in whatever field of surgery the occasion for a decision between procedures or methods arises, the method of choice must be that which is safest and most efficient, regardless of the time and effort necessary. Secondly, the impression that the sacral block method is time consuming is erroneous. As determined by accurate records in forty consecutive cases, the average time necessary for making the complete block of seven injections is twelve and a half minutes. This is approximately the time necessary for the induction of ether anesthesia. The maximum time in an unusually difficult case was thirty minutes, and the minimum four and three-quarter minutes.

There is also the generally accepted opinion that there is the occasional individual whose mental make-up is such as to prevent the successful use of local anesthesia, for "psychic" reasons. It is recognized that excitable, nervous patients of this type may permit themselves to become so wholly under the influence of fear and apprehension as to be unable to distinguish between pressure and pain. More or less unsatisfactory anesthesia results are expected with this type of neurotic individual, with any operation done during consciousness. It may be that this objection applies with local anesthesia in general, or with spinal anesthesia, or with sacral block anesthesia in intraperitoneal pelvic surgery,

or in surgery involving the dome of the bladder, but it does not apply with sacral block anesthesia in perineal prostatectomy. This series of 378 cases has included the usual percentage of exceedingly nervous and excitable, non-English-speaking Russian Jews. Every one doing surgical work is familiar with this type and knows how difficult it is to gain the confidence of one of these individuals. Since none of these were excluded from the series, and since each of these neurotic individuals went through exactly the same routine as the others, with only one-fourth grain (16 mg.) of morphine, and without general anesthesia, it is clear that nervousness or mental instability does not constitute an objection to the sacral block method.

I know of no contraindications to the use of sacral block anesthesia in perineal prostatectomy.

### SACRAL BLOCK VERSUS SPINAL ANESTHESIA

I am not in a position to be able to express an opinion relative to these two methods, based on personal experience with both. The general impression is that spinal anesthesia carries with it a certain hazard of its own, and that a certain percentage of reaction is inevitable, a few of these being serious, and an occasional one fatal. On the other hand, Chute[17] has reported a total series of 840 prostatectomies, with "no immediate fatalities and no remote ones that could be attributed to spinal anesthesia." In discussing this paper, Lundy, who has had an unusually extensive experience with both methods, states: "It seems to me that sacral block is safer than spinal anesthesia." Regardless of how great the inherent hazard in spinal anesthesia may be, the figures reported by Dr. Chute clearly demonstrate that the percentage of mishap may be reduced to a very small minimum in proper hands.

Disregarding the hazard question, however, I believe that the opinion is permissible that the sacral block method (in prostatectomy) is preferable to the spinal method, on an efficiency basis alone. Analyzing the last 512 consecutive cases, Chute has reported that there were forty-three cases, or slightly more than 8 per cent, in which "a little supplementary anesthesia was employed." Barney and Shedden,[18] analyzing a series of 250 prostatectomies in the Massachusetts General Hospital from the anesthesia point of view state: "In any considerable group of spinal anesthesias, an incidence of nearly 10 per cent of spinal reactions is to be expected, of which some are fatal."

My own opinion, based on the general impression relative to spinal anesthesia in average hands and on figures here submitted, is that the sacral block method (in prostatectomy) is more safe and less subject to failure. Moreover, postoperative headache, occurring as a sequela of sacral block anesthesia, is an unheard of complication.

### MORTALITY RATE IN PROSTATECTOMY

Since this paper has to do primarily with sacral block anesthesia, a discussion of operative technic and late functional results would here be out of place. It is essential, however, to include table 2, showing the mortality rate, because any given procedure may be justified only by the results obtained. As indicated, there has been a total of 9 deaths out of 378 consecutive cases of perineal prostatectomy, a mortality rate of 2.38 per cent. The largest number of consecutive cases included in this series without a death was 121. None of these deaths have been in any way associated with the anesthesia, since all occurred at intervals of from six days to several weeks after the operation, from such causes as late general sepsis, three cases; renal insufficiency, three cases; pneumonia, one case; pulmonary embolus, one case, and acute cardiac decompensation, one case. Of the three deaths due to general sepsis, two were considered to have been due primarily to lowered resistance secondary to profuse delayed hemorrhage, coming on as late as two weeks after the operation. In the entire series, however, there has been no death resulting directly from hemorrhage, either immediate or late.

This mortality rate represents a faithful and accurate recording of all deaths, due directly or indirectly to the prostatectomy, or occurring from any cause whatever, during the patient's stay in the hospital, with one exception as outlined later. Among the nine deaths there has been included one which occurred on the thirty-ninth postoperative day, in sepsis, associated with the formation of an abscess in the calf of the right leg. One additional death, which occurred on the fifty-first postoperative day (from renal insufficiency), I have considered could be honestly and properly excluded from the series, since the patient was up and fully dressed during the third postoperative week and had been given permission to return home. Although the incision was entirely healed and the urine passing normally through the urethra, the patient voluntarily chose to remain in the hospital awaiting more complete convalescence. Obviously this patient, able to walk, fully dressed, in the hospital corridor, had survived the prostatectomy.

TABLE 2.—*Perineal Prostatectomy Under Sacral Anesthesia: Immediate Results*

| | |
|---|---|
| Total consecutive cases | 378 |
| Average age | 70 |
| Above 80 | 25 |
| Deaths | 9 |
| Mortality rate (per cent) | 2.38 |
| Total consecutive cases with no deaths | 121 |
| Sacral anesthesia (consecutive cases without failure) | 229 |
| Rectal injury | 2 |
| Postoperative "shock" | 0 |
| Delayed hemorrhage (several days) | 10 |
| Epididymitis | 42 |

### FACTORS TENDING TO LOWER THE MORTALITY RATE OF PROSTATECTOMY

Chief among the factors tending to minimize the mortality rate in prostatectomy are (1) preliminary drainage, (2) the perineal route, (3) excessive care in hemostasis and (4) sacral block anesthesia.

1. Unquestionably, the most important of these factors is adequate and prolonged preliminary drainage. This item has been attended to with scrupulous care and rigid insistence. The rule requiring a minimum ten day drainage in all cases, regardless of apparent good general condition has not been deviated from in any instance. It was also insisted on that a ten day period of normal temperature precede every operation. In many cases the drainage period extended over several weeks and, in the occasional case, over several months. The suprapubic drainage route was employed in about 25 per cent of cases, in which the retained urethral catheter proved to be intolerable or inefficient, for one reason or another.

17. Chute, A. L.: The Use of Spinal Anesthesia in Urology, J. A. M. A. **96**: 88 (Jan. 10) 1931.

18. Barney, J. D., and Shedden, W. M.: A Study of Anesthesia in Prostatectomy, S. Clin. North America **2**: 1093-1104 (Aug.) 1922.

2. Comparative figures show that the perineal route carries with it a lower hazard than does the suprapubic. It is my opinion that, if for no other reason, this is because abdominal distention or adynamic ileus, so common following suprapubic or abdominal operations, is comparatively rare following operations on the perineum, whether for prostatectomy or for other purposes. In the entire series, this distressing and serious postoperative complication has been conspicuously absent.

3. Immediate postoperative hemorrhage, in every case, has been controlled by means of a combination hemostatic and drainage bag, a detailed description of which has been previously submitted.[19] This rubber bag, inflated with air and maintained in place in the prostatic cavity by means of countertraction against the perineum (without traversing the urethra), provides hemostasis both during and after the operation. Also, in each case, a careful attempt was made to clamp and ligate bleeding points around the bladder neck. For the latter purpose, an excellent opportunity for deliberateness was provided by the elimination of the necessity for haste, as the result of the sacral anesthesia. Emphasis should be placed on the importance of minimizing the loss of blood, for the reason that it is undoubtedly true that, although comparatively few patients die as the direct and immediate result of hemorrhage, there are many fatalities occurring later because of lowered resistance and sepsis, resulting indirectly from the spilling of blood. These remarks refer merely to the control of immediate postoperative hemorrhage, occurring during the first two or three postoperative days. The control of immediate post-prostatectomy hemorrhage would seem to be an almost solved problem. Delayed postoperative hemorrhage, however, occurring after a ten day or two week interval, often profuse and massive and coming on suddenly, in a patient considered to be out of danger, constitutes a grave menace and may be considered the chief problem connected with prostatectomy today. At any rate there is no other complication so serious, so unforseen, and which one is so wholly unable to prevent. Fortunately, this is a rare complication (approximately 2 per cent), and one which might well pass unnoticed in a small series.

4. Sacral block anesthesia, the fourth factor in minimizing the mortality rate, unquestionably plays an important rôle. This opinion is justified because there have been no anesthesia deaths in the series, and no alarming anesthesia reactions. The outstanding feature is that these patients return to their beds in the same condition, with respect to circulation and general appearance, as before the operation. Whatever postoperative "shock" may be, this condition is conspicuously absent following the perineal operation, under sacral anesthesia.

## SUMMARY

1. The more or less general impression that sacral block anesthesia (in prostatectomy) is not wholly reliable and dependable, and that there is a certain small but inevitable percentage of failure, is erroneous. This mistaken idea may be explained in part by a confusion between the simple caudal injection and the complete sacral block, and, in part, by inaccuracy in technic, without recourse to theories with respect to anatomic and physiologic variation.

2. Sacral block anesthesia, accurately administered and with the needles unquestionably in the foramina, is uniformly and invariably dependable for perineal prostatectomy. This statement is based on the fact that it has been possible to run an as yet uninterrupted series of 229 consecutive cases of perineal prostatectomy, without the necessity for additional anesthesia in a single instance, and without drug narcosis other than one-fourth grain of morphine.

3. The sacral block method is applicable in all cases of prostatectomy. It has not been necessary to exclude a single case on account of fear or nervousness or mental excitability on the part of the patient.

4. Sacral block anesthesia carries with it no hazard which is inherent in the anesthesia itself, provided the most elementary form of caution (aspiration before injection) be employed, in avoiding puncture of the dural sac or blood vessels.

5. The average time necessary for injecting the caudal canal and the three sacral foramina on each side (seven in all) is twelve and a half minutes.

6. The method of anesthesia which may be made invariably dependable, which has no inherent anesthesia hazard and no complications or sequelae, which is simple in its technical application and is not time consuming should be the method of choice.

7. Sacral block anesthesia has been a material factor in maintaining a mortality rate as low as 2.38 per cent (nine deaths) in a consecutive series including 378 cases of perineal prostatectomy.

## CONCLUSION

Sacral block anesthesia is the ideal method of anesthesia for perineal prostatectomy.

Medical Arts Building.

19. Davis, Edwin: Distensible Bag for Hemostasis and Drainage Following Perineal Prostatectomy, J. Urol. 18: 201 (Aug.) 1927.

## ABSTRACT OF DISCUSSION

### ON PAPERS OF DRS. LOWSLEY AND KIRWIN, T. M. DAVIS, PEACOCK, AND EDWIN DAVIS

DR. ALEXANDER RANDALL, Philadelphia: Concerning the history of instrumental prostatectomy, starting with Young's punch, one finds that Young conceived the instrument to remove bars and small obstructive lobules. Stepping from that into the treatment by electrical cauteries, and taking Collings' instrument as an example of this, he devised his instrument for the excision, or even the incision, of obstructions at the vesical neck. It is on record that both these men have decided to limit their instruments' use to median bars, to small localized hypertrophies, to the relief of cicatrices, and to handling, in a palliative way, malignant tumors. I am convinced that no instrument now in use or yet to be devised will ever perform a complete prostatic adenectomy, as is accomplished by open operation today. As against this is the possibility that partial removal will give clinical results to which may rightly be applied the word cure. My only criticism of Dr. Davis's method is the question of its stability and the possibility that partial removal and temporary results, with the likelihood of gradually recurring obstructions, will lure one into a false security. I fear he will have a recurring morbidity and that the operation will have to be repeated. That is not really a criticism, for such a method could be repeated with safety to the patient. Therefore, though I think his method is a stimulating advance, I wish to leave it with these warnings: It is a highly technical procedure; it cannot remove all the hypertrophied prostate; and I imagine that, in the hands of the majority of the men who purchase an instrument expecting success, it will meet with failure. Dr. Peacock's paper is an interesting exposition of a hoped for technical advance. It has long been an axiom that the more one pretties up a prostatectomy, the higher one shoves up the mortality. One must realize that it is not the existence of hypertrophic prostatic tissue in the body that is the trouble, but the effect it produces by urinary obstruction. Therefore one cannot conclude that with the removal of the prostate one has removed the patient's clinical trouble. There follows after the removal

the delicate readjustment of the effects of that obstruction, which have to be most carefully dealt with. If any one thing has brought prostatectomy to its present success, it has been the understanding of preoperative drainage. If anything will carry it further, I think that the greatest factor will be competent postoperative drainage, and for that reason I fear his procedure.

DR. R. M. NESBIT, Ann Arbor, Mich.: Two and a half years ago, in working with Dr. Hugh Cabot, I went over the records of 450 patients who had been operated on for prostatic obstruction, with drainage, and found that 17 per cent had epididymitis. At that time my associates and I started performing vasectomy on all patients as a preoperative measure and since then these patients, over 100, have shown an incidence of less than 1 per cent of epididymitis. In the one instance that has occurred there were chills and fever following operation and immediately preceding the epididymitis, and it was felt that probably the infection was blood borne.

DR. HERMON C. BUMPUS, JR., Rochester, Minn.: I shall discuss the paper of Dr. T. M. Davis because I just visited his clinic and saw him operate on four patients, and a number who had been operated on previously were kind enough to demonstrate themselves. Dr. Davis has in no way exaggerated his results or the ease of the procedure. When, in the eighteen eighties, surgery of the prostate was first attempted, partial prostatectomy was the rule. It soon became apparent that, as then practiced through a suprapubic incision, partial removal did not completely relieve obstruction. Therefore, complete removal of the gland was undertaken and success followed, for it is axiomatic that when residual urine is completely removed results are good. The modern punch operation, as practiced by Dr. Davis, by removing all obstruction does completely relieve residual urine and hence is likewise successful. If obstruction is relieved, all indications for removing the gland in toto disappear. An elderly man will never acquiesce to the loss of his prostate when he learns that his neighbor has been relieved of all symptoms of obstruction by this simple procedure.

DR. O. S. LOWSLEY, New York: I have been using regional anesthesia since 1921, and good anesthesia is always obtainable if the anesthetist gives a sufficient amount of the agent used. It has been worked out that procaine hydrochloride is destroyed in the liver, and one can use a large amount without any danger if it is given slowly. I consider the method an excellent one. With regard to Dr. T. M. Davis's paper I wish to register a protest against the use of this instrument by every one. A protest also is in order against his using it in every case. The laryngologists have given up using the same type of operation for tonsils. Why? Because they have had to go back when they have taken out only a portion and take out the whole tonsil later. That is why Dr. Davis and others will have to give up this instrument. It cannot take out the whole prostate. One subjects old men to procedure that is a great strain for two or three hours and they go home. They would probably rest at home as well as in a hospital in the average case, but I think that there will be a group of recurrences on this that will make them give it up, as Dr. Max Stern, who devised this instrument that Dr. Davis uses, did in adenomatous hypertrophy of the prostate. I wish to commend my New York confrères who take a more conservative view. Dr. Kirwin, Dr. Collings and Dr. Stern are all convinced that this type of prostate should not be operated on in the manner described by Dr. Davis. In connection with my demonstration of a method of operative intervention in suprapubic prostatectomy, I attempted to demonstrate that the intra-urethral method of removing the prostate is to be avoided, owing to the danger of tearing into the plexus of Santorini. In conclusion, I again object to patchwork at the vesical orifice. Whether the sphincter is destroyed or not, the vesical orifice will resume its function. If sutures are put in, they cause scar tissue and delay the resumption of function of the internal vesical sphincter.

DR. J. H. MORRISSEY, New York: This past week, I had an opportunity of seeing the work and immediate results obtained by Dr. Davis. The general condition of some eight patients, based on the criteria by which one judges these patients, was certainly an improvement on the results which I know I should have had in the same interval. My main objection to any punch procedure in the past has been based on the assumption that the element of drainage to combat existing or postoperative infection is disregarded. I can now see that this fear is groundless, as the procedure itself provides better drainage than the patient has had previously, and in the presence of developing infection it also looks after this complication satisfactorily. I think that there are limitations to Dr. Davis's method. The loops are weak; the electrical knowledge and the patience required are something that the average genito-urinary surgeon does not possess. The fact that Dr. Davis had four instruments on the table indicates to my mind that they must break, and he was prepared for such an emergency. Of course, the perfect radio knife is that which cuts and cauterizes, checking bleeding points at the same time. That will come eventually. We have all seen a great advance and development in the various trends in electrical instruments used in urology. We must be careful not to disregard or belittle the work of a new, honest and earnest investigator who is trying to give a choice in the method of removal of obstructive prostates, a choice as to whether the prostate shall be resected, as he calls it, punched out, removed or, as happens in too many cases, yanked out in two or three seconds.

DR. A. J. CROWELL, Charlotte, N. C.: Every one realizes that progress is being made in the handling of prostatic patients. The day is not far distant when prostatectomies will largely be a thing of the past. I have been as skeptical of prostatic resection as any one, but I now know that there are great possibilities in this procedure. This operation has a definite field in prostatic surgery. It is not suitable for every case, but it is applicable in at least 90 per cent of the cases requiring surgery. Since Dr. Davis came with us January 1 of this year, my associates and I have done only four prostatectomies in operating on sixty-two patients. I wish to show a cystogram of a large median lobe prostate which Dr. Davis operated on, last Tuesday, with the tissue removed (24.6 Gm.), to demonstrate the amount of tissue that can be removed by this method when the hemorrhage is controlled. Undoubtedly, a new era in the management of prostatic patients is opening. The resection instruments at present are imperfect, but possibilities have been demonstrated by them and they will rapidly be improved so that any skilled urologist can do this work successfully.

DR. ALBERT E. GOLDSTEIN, Baltimore: In discussion of the paper of Dr. T. M. Davis, several things should be stressed. The first is something that Dr. Morrissey mentioned, that one patient walked into the clinic that morning and was operated on. To me that was a dangerous procedure. The one thing I try to do is to accomplish preliminary drainage. Operating on patients immediately on their coming to the clinic will get one into trouble. For years preliminary drainage has been practiced, and one should be cautious in carrying this out. If one is perfectly satisfied to repeat this operation, it is probably all right to go ahead. One must consider what the condition is. It is probably an adenoma to begin with, and it will recur if one removes only one section at a time. Furthermore, this method will be used by those who cannot possibly perform a prostatectomy on patients, so they will resort to the Davis apparatus and again there will be trouble. In discussing Dr. Peacock's paper, I wish to stress that the one thing that has put urology on its present sound basis is the free drainage that has been used in all cases. I think one should use drainage irrespective of what type of operation one is going to perform. If one feels that the bladder should be closed, there is one method Dr. Peacock did not mention. No one mentioned closure in the perineal prostatectomy. I have removed the prostate and, while I did not close the urethra with the capsule, I closed the wound and packed the capsule for hemostatic purposes. It seems to me that if the wound is going to break down, which it will and did in 26 per cent of my cases, one is less apt to have trouble if there is room for drainage or if there is trouble in the way of hemorrhage.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: I have always maintained that the punch operation is indicated only in patients with obstruction of the median bar. In patients who have a hypertrophic prostate and whose condition will not permit, or who will not submit to operation, I have been endeavoring to reduce the obstruction by means of Collings' electrotome, and have had some success. I feel that this pro-

cedure of Dr. Davis is worthy of consideration. In regard to reaction, all urologists know that any patient in whom a catheter or sound is passed is likely to have a rigor and high fever. How Dr. Davis can use a metal instrument and burn out pieces of the prostate and not get any reaction is beyond my comprehension. In all urethral and bladder instrumentation, I give from 7½ to 10 grains (0.5 to 0.65 Gm.) of methenamine four times a day, and in addition often give 31 grains (2 Gm.) intravenously. This procedure has markedly reduced reactions and in some cases eliminated them entirely.

DR. A. I. FOLSOM, Dallas, Texas: Dr. Randall did not go far enough back into history to include it all. Bottini was the first man who ever advocated this procedure; Georges Luys came after him, and then came Young with his cold punch, but I think one of the most important contributions for the relief of this condition is generally overlooked, and that is the work of John Caulk of St. Louis, who instituted the method now being perfected. He has been saying for ten years that there were things about prostatectomy that we urologists did not understand. He has told us that after removing even a small section of the gland there is relief, so far as passage of urine is concerned. I think the future of urology will place John Caulk's work at the watershed among the procedures furnishing relief for these patients. I do not believe that Caulk's punch is the final answer to the problem. The next step was Collings' electrotome, and then came McCarthy with his loop. I have been using that; it is simply a quick means of doing what Dr. Davis is doing, and I have been increasingly surprised to find the extent to which I can go. I am operating on patients today whom a year and a half ago I should not have considered operable at all. Dr. Davis makes a mistake in attempting to make this a simple solution of all prostatic cases. He is wrong in this; I do not care what method is used. The fundamental purpose is preliminary drainage. He is emphasizing the wrong thing. These patients should be handled just as carefully, with preliminary preparation and care and with after-care, as those in whom the prostate is removed. I wish to cite the case of a patient with a large adenoma which I should not have considered removing at all in this way two years ago. However, the old gentleman had an almost complete heart block, and the internist to whom I referred him said that it would be impossible to remove the prostate safely. I explained this to the patient but he was so very uncomfortable that he wished us to do anything we could. I used this type of procedure, and it is now eight weeks since the operation. The bladder is normal and the residual urine is 1 ounce. He gets up only twice at night and is well. There is much to be learned about this operation. We must take it up carefully and seriously, but I think we are standing at a most interesting place in prostatic surgery.

DR. GIDEON TIMBERLAKE, St. Petersburg, Fla.: I saw Dr. Davis at work, and was surprised that he did the operation with only one assistant. If his method does give drainage we are coming to it certainly.

DR. LEO L. MICHEL, New York: The trouble with the Stern resectoscope lies in the inconstant radio current. The same voltage at different times gave different degrees of heat to the operating loop. It required a certain constant heat degree to control hemorrhage, and, because of this imperfection, hemorrhage was a frequent complication. Stern used this procedure in middle lobe intrusion, malignant intrusion and fibrotic bladder necks. Later, Dr. Stern gave up this operation in middle lobes. There was too much danger from hemorrhage, but when the current worked well his results were fine. Dr. Davis and R. Wappler have perfected the radio current. The present current permits a constant measured heat degree, thereby completely controlling hemorrhage. The operating loops of Davis are larger than Stern's, enabling one to remove larger pieces of tissue in a shorter time, and I believe with Dr. Davis that he can successfully attack almost any type of prostatic overgrowth with the present apparatus. With the radio current perfected, the results depend on the experience and skill of the operator in the manipulation of his instrument.

DR. W. S. PUGH, New York: When Dr. Stern and Dr. Collings first brought out their resectoscopes, they were a failure in true hypertrophy. The patients had recurrences, some in six months, some in a year, and were worse off than before. Regardless of what instrument is used, there will be hemorrhage in some instances. I have had two very severe cases, one with almost complete exsanguination, after using Collings' instrument. That occurred within twenty-four hours and in a second case there was severe hemorrhage after eight days. One should adopt a very liberal ground in prostatectomy. It is silly to say that one should use any single method in every case. There is a place for all methods.

DR. EDWIN DAVIS, Omaha: There seems to be no doubt that the contribution of Dr. T. M. Davis overshadows all else that has been heard this morning. This carries with it all the conviction that he has given us something of value. Time will tell the value of prostatic enucleation versus prostatic resection, and in the last analysis we may arrive at the solution of the problem.

DR. T. M. DAVIS, Greenville, S. C.: Dr. Randall spoke of recurrences. In sixteen of the cases reported, a prostatectomy had been done previously and there had been recurrences. The number that have recurrences following prostatectomy is not accurately known. I shall probably have some recurrences in this series of cases. As to purchasing an instrument and performing the operation without experience, every one who buys other instruments cannot use them skilfully without experience. I do not operate on every patient. In patients with extremely large bilateral lobes in which it is impossible to observe the posterior border with the cystoscope, I do not attempt to operate. As to Dr. Stern giving up the use of his instrument, I do not know about that. He deserves great credit for its invention. The Wright brothers invented the first airplane and their first flights were only a few hundred feet. They were by no means the man that flew an airplane from New York to Paris. All patients receive appropriate preliminary treatment. Some men come in with a small median bar, who show normal conditions on chemical analysis of the blood and a very small amount of residual urine, and there is no reason why they cannot be operated on without delay. One can do a decompression afterward if one wishes. There is no interference with the urinary output and one gives proper preliminary treatment before operation. As to why the patients do not have a reaction, I do not know but apparently they do not. Whether there is anything in connection with the current is a question. Whether that prevents a reaction I do not know, but the patients are very comfortable after this procedure and only 7 patients out of 246 have had to have a hypodermic after operation for relief from pain. Morphine is ordered if required, in every instance, but only seven patients have complained at all. If they have any discomfort to amount to anything it is usually in the third week, when the epithelium begins to grow back, and this is easily relieved by tincture of belladonna. This treatment has some action on the tissue that we do not know about. Many carcinomas are arrested; I do not know why. They do not seem to metastasize as rapidly after this treatment, and the gland does shrink. Another thing is that if one institutes adequate drainage one can see the prostate secretion pour out during sectioning and it is more than just a removal of that much tissue.

DR. T. J. KIRWIN, New York: There is a middle case. To take out enlarged prostates when one cannot get the cystoscopes over the top of them is something I do not think Dr. Davis would attempt, and neither should I.

DR. A. H. PEACOCK, Seattle: This argument about the construction of the internal urethral orifice is not only one of surgical instruments and pathology, but a matter of skill and workmanship of the individual. No rule can be laid down for any one operation. I think many of us feel that if we have no particular skill in using some of these special instruments it is safer for us to visualize the orifice suprapubically in those cases in which it is possible. In reply to Dr. Randall's criticism relative to closing the bladder, I wish to state that we do get perfect drainage with a large catheter and many of the objections are fancied and not real. I urge you to try closing cystotomies and am sure if you do, you will be satisfied with your results.

# ACCESSORY SINUS INFECTION IN SUSPECTED PULMONARY TUBERCULOSIS *

JOHN D. OSMOND, M.D.
CLEVELAND

In making roentgenologic examinations of many chests, one finds evidence of chronic infection that is nontuberculous in origin. Most of the patients who are referred for roentgen examination of the lungs are sent for one purpose; namely, to determine whether or not pulmonary tuberculosis is present and to what extent. Formerly, the roentgenologist was content with his diagnosis when he could rule out a pulmonary tuberculous infection. Now, in order to be of greater service to the referring physician and to the patient, he must try to find the origin of the chronic infection that is causing the lung symptoms. The lung changes may represent chronic bronchitis, bronchial asthma, or bronchiectasis. The origin may be in the upper respiratory tract, especially the accessory sinuses.

During the past four years my associate Dr. James H. West and I have been impressed by the number of chest patients whose clinical symptoms suggested early tuberculosis but whose chest roentgenograms revealed increased connective tissue branching out from each hilus region with no parenchymal involvement. The linear markings were broad and short and there was thickening of the bronchi at the bases. Most of the patients were adults. Out of 1,377 chest patients examined, one or more roentgenograms of the sinuses were made in 124 cases. Of these, seventy-six had definite sinus complications. Seventeen had signs of tuberculosis and sinusitis. All the sinus examinations were made on our own responsibility; only recently are requests being made to examine the sinuses in addition to the stereoscopic chest studies. In addition to this list of chest cases, about an equal number of similar patients were examined at St. Vincent's Charity Hospital. At first, no sinus examination was made until after the chest roentgenograms were studied. If the patient looked well nourished and had a chronic cough, we made a single roentgenogram of the sinuses in the Waters position; later it became our custom to take a short history at the time of the fluoroscopic examination. If the patient gave a history of frequent head colds and increased expectoration, a sinus examination was clearly indicated. The number of chest patients for whom we made one or more sinus roentgenograms steadily increased each year during the series from 1927 to 1930 inclusive. In 1927 we selected only nine patients; in 1930 there were fifty-four. Stereoscopic chest studies were made in all cases. A surprising number of sinus complications were found. A sinus examination was not made in any case giving gross fluoroscopic evidence of tuberculosis.

Fig. 1 (case 3).—Active sinusitis with pus in each antrum, more in the right than in the left.

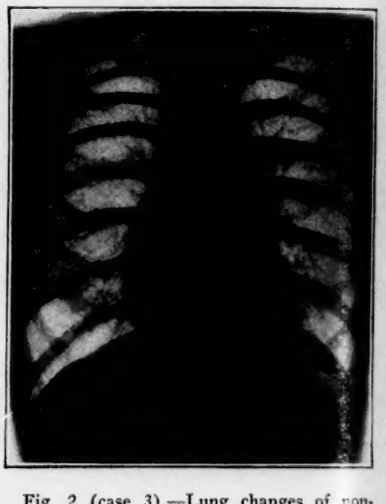


Fig. 2 (case 3).—Lung changes of nontuberculous origin. Patient's symptoms disappeared with treatment of her sinusitis. The case had been diagnosed clinically as an active pulmonary tuberculosis.

Fluoroscopic examination alone, without stereoscopic roentgenograms, is not reliable for detection of early pulmonary tuberculosis. The early lung changes are not visible on the fluoroscopic screen and much valuable time may be lost in beginning the proper treatment of early tuberculosis.

Since this paper was begun, four months ago, four helpful references have been found in the literature regarding the relation of sinus infection to respiratory disease. Knight,[1] Schwartz[2] and Mullin[3] referred mostly to the adult, and Wasson[4] has written several excellent articles regarding the infant chest and the development of bronchosinusitis in children, and they all clearly show that one may expect to find lung changes in the adult which had their origin years before in sinus infection and reinfection, or some other infection of the upper respiratory tract.

A patient may be unaware of the presence of a sinusitis. Pain is not necessarily a symptom. The only subjective symptom may be a moderate postnasal dropping of mucus and a tinge of yellow in the nasal secretions. When such symptoms obtain for more than a month, a sinus examination will reveal chronic sinusitis in a high percentage of cases.

I shall consider briefly the anatomy of the lung and the use of a few terms. The use of the word hilus as used in this paper refers to the fan-shaped area including the root of the lung and extending peripherally about an inch beyond the bifurcation of the bronchi. The lymph nodes that most frequently concern the roentgenologist are the bronchopulmonary glands

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Knight, R. W.: The Relation of Sinus Infections to Respiratory Disease, Canad. M. A. J. **18**: 54 (Jan.) 1928.
2. Schwartz, Morris: Sinusitis in Relation to Acute Bronchitis, M. J. & Rec. **131**: 310 (March 19) 1930.
3. Mullin, W. V.: Relation of Paranasal Sinus Infection to Disease of Lower Respiratory Tract, J. A. M. A. **87**: 739 (Sept. 4) 1926.
4. Wasson, W. W.: Bronchosinusitis Disease and Incipient Pulmonary Tuberculosis, Illinois M. J. **58**: 62 (July) 1930.

located at the bifurcation of the bronchi. When these glands enlarge or change in appearance, they are more easily detected than the more centrally placed bronchial or mediastinal glands, because they are nearly surrounded by air. The linear markings that extend outward from each hilus are made up of artery and bronchus bound together by connective tissue. The vein that accompanies the artery and bronchus plays little part in differential roentgen diagnosis, and the distribution of the nerve branches does not show on the roentgenogram. Changes in these linear markings are sometimes called bronchial thickening or increased fibrosis, but in chronic infection it is due mostly to increase in connective tissue. The older the patient the more connective tissue, and the older the patient the more chronic the infection. When this broad but short increase in the linear markings is general at each hilus, it is typical of nontuberculous infection. A typical tuberculous infection shows an area of mottling somewhere in the parenchyma and enlarged lymph glands at the hilus draining this area. Some fibrosis can usually be found between the distal focus and the enlarged glands.

The rhinologists have received much assistance in the diagnosis of sinus disease since the roentgenologists have been making sinus examinations before and after the injection of iodized oil. Such roentgenograms detect thickening of the membrane lining the sinuses and indicate the degree of thickness of the hyperplastic tissue. Moreover, certain indentations and irregularities indicate the presence of polyps. Collections of pus in walled off areas of hyperplastic tissue in an antrum will probably never disappear until a radical operation removes the chronic infected tissue from the sinus. It

Fig. 3 (case 4).—Injection of iodized oil in each antrum showed thickened membrane of a chronic sinusitis. Symptoms disappeared after bilateral Caldwell-Luc operation.

is difficult to think of prolonged nasal disease and some cases of asthma without associated sinus infection. Polyps in the nose or antrum mean chronic infection and will eventually give rise to lung changes and chest symptoms.

Mullin and Ryder have shown experimentally that the lymph channels drain the antrums and frontal sinuses into the bronchial and mediastinal glands by way of the submaxillary, internal jugular and carotid route, and Mullin [3] has further stated that protracted flooding of the lymph channels with infectious material from the hyperplastic maxillary sinus tends to produce a chronic peribronchitis and, if neglected, a bronchiectasis will follow. However, in my opinion, the more usual route of bronchial infection is a spreading downward of the infectious material through the trachea and the bronchial branches.

Every rhinologist knows that influenza causes many cases of sinusitis and that acute infectious diseases such as measles and whooping cough may cause a sinusitis.

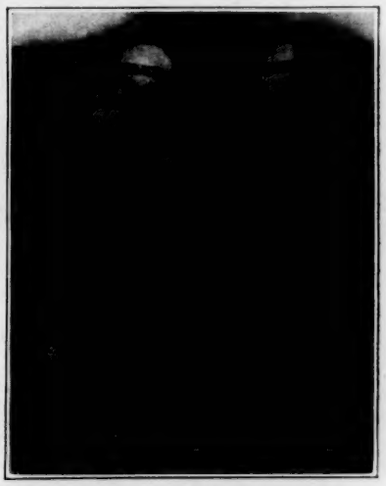


Fig. 4 (case 4).—Nontuberculous infection with bronchiectasis, relieved by treatment of sinusitis.

Every roentgenologist, when requested to give a roentgen treatment for enlarged bronchial glands following whooping cough, should include a roentgenographic study of the sinuses when he makes his stereoscopic chest studies preliminary to treatment.

Every physician who is called on to examine clinically a chest should include acute and chronic infection of the upper respiratory tract as the possible source of the present lung symptoms. Tracheal and bronchial irritation may follow within a few hours after the onset of an acute rhinitis or pharyngitis. Stereoscopic roentgenograms will detect very early bronchopneumonia, which may develop within twenty hours in influenza. In this series, we are entirely concerned with the subacute and chronic stages of bronchial infection, which can best be described by giving a short history of a few cases and reporting the roentgen observations:

CASE 1.—In June, 1927, we examined the chest of a young woman, aged 22. The roentgenograms showed a hazy infiltration of the bronchial branches throughout both lungs, particularly in the posterior branches in the second interspace of each upper lobe. We considered it a very early tuberculous infection. No history was taken of the case. We examined the same patient two years later after taking the following history: She began to have frequent colds at the age of 10 years, and began to cough at 15. Her tonsils were removed six months later and the colds recurred. At 19, polyps were removed from the nose. Chest symptoms became worse and the cough increased. She spent three months in the Warrensville tuberculosis sanatorium in the early part of 1927. There was no history of roentgen examination of the sinuses. A year later there was much expectoration of a yellow and green mucus. The patient had a temperature of 99.6 F., a frontal headache, and deafness in the left ear. Our report was as follows: "Stereoscopic examination of the chest shows a slight thickening of the bronchial branches extending up from each hilus and evidence of bronchiectasis in each lower lobe. There is no evidence of tuberculosis. Examination of the sinuses shows a marked cloudiness of each antrum and some haziness of both frontals and the ethmoids, indicating a chronic sinusitis with pus in each antrum." Polyps were removed and an antrotomy was performed by a rhinologist, May 20, 1929; a bilateral Caldwell-Luc operation was done November 12. The patient has greatly improved.

CASE 2.—In August, 1929, we made a roentgenographic study of the sinuses of a man, aged 29, who for years had had a recurring nasal discharge and chronic cough. He had the idea that he could throw it off eventually and had not sought medical aid. He gave no history of a previous pneumonia. His roentgenograms showed a general cloudiness of all the sinuses and evidence of a chronic sinusitis. Later, a chest study was made which showed a chronic bronchitis and bronchiectasis and no tuberculosis. Antrotomy was done. Lavage was done for six weeks. Sinus and chest symptoms improved.

CASE 3.—Early in January, 1930, a man came for advice concerning a young woman who was a school teacher in a neighboring city and who had come to Cleveland for the Christmas vacation, was taken ill, and was at present in a small hospital. Her case had been diagnosed as pulmonary tuberculosis by two physicians in the hospital and also by a city physician. She gave a history of beginning to cough in November, and soon after reaching Cleveland had a temperature of 104 F. Three days later she had entered the hospital and two weeks later was told by her physician that she had tuberculosis. My advice to the friend was that the patient would surely receive good care in the hospital, but if anything radical was proposed, a consultation could be requested. January 25, after being told that she must spend three months in the City Hospital and then enter the tuberculosis sanatorium, she insisted on a consultation. The report of her roentgen examination is as follows: "Stereoscopic examination of the chest shows a generalized thickening of the bronchial branches in the right lung and a slight thickenig of the bronchial branches extending up from the left hilus. There is also a slight haziness along the vertebral bronchial branches extending up into the right apex. In our opinion, these lung changes are nontuberculous in origin. Examination of the sinuses shows a marked haziness of each antrum and a slight haziness of each frontal and all of the ethmoid cells, indicating an active sinusitis with pus in each antrum. The sphenoid is comparatively clear. In our opinion, the lung changes are due to the sinus infection." She was referred to a rhinologist, who washed out each antrum. She

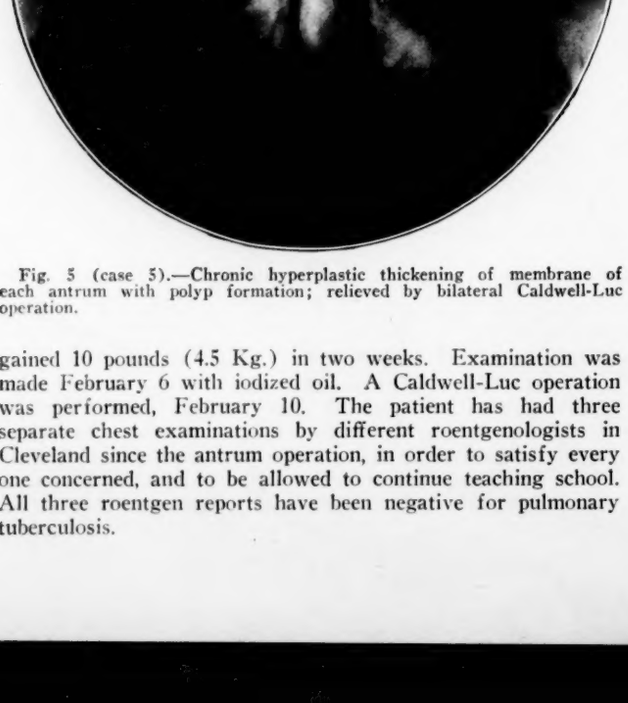


Fig. 5 (case 5).—Chronic hyperplastic thickening of membrane of each antrum with polyp formation; relieved by bilateral Caldwell-Luc operation.

gained 10 pounds (4.5 Kg.) in two weeks. Examination was made February 6 with iodized oil. A Caldwell-Luc operation was performed, February 10. The patient has had three separate chest examinations by different roentgenologists in Cleveland since the antrum operation, in order to satisfy every one concerned, and to be allowed to continue teaching school. All three roentgen reports have been negative for pulmonary tuberculosis.

CASE 4.—In February, 1930, we examined the chest of a boy, aged 14, who had a chronic cough and expectorated considerably, and whose sputum had been repeatedly examined for tubercle bacilli, with negative reports. He had had repeated colds for five years. His sinuses had never been examined. There was no history of pneumonia. The report of our roentgen study was as follows: "Stereoscopic examination of the chest shows a general thickening of the descending bronchial branches in each lower lobe and a lesser thickening of the ascending bronchial branches from each hilus, indicating some nontuberculous infection and a bronchiectasis in the lower lobes. There is no evidence of tuberculosis in either lung. The heart is crowded to the left side of the median line by a depressed sternum. The apexes and costophrenic angles are clear. Roentgenograms of the sinuses show marked evidence of chronic sinusitis of each antrum with hyperplastic thickening of the membrane. There is also some haziness of the ethmoid cells. The frontal sinuses and the sphenoids are clear. In our opinion, the chronic sinusitis is the cause of the bronchitis and bronchiectasis, and in our opinion the lung condition will rapidly improve with treatment of the sinuses. . . . Injection of the right antrum with iodized oil shows a very thick and irregular membrane, indicating the presence of probable polyps in the antrum. Injection of the left antrum shows that the membrane is not quite as thick as in the right, but it is irregular also and suggests the presence of polyps." A bilateral Caldwell-Luc operation was performed February 11. The cough disappeared; the patient rapidly gained weight.

Fig. 6 (case 5).—Nontuberculous infection. Patient had been treated for more than two years in a tuberculosis sanatorium. No evidence of any pulmonary tuberculosis at this examination.

CASE 5.—This report is too interesting to leave out of the series examined in the years 1926 to 1930 inclusive, although this patient was examined in March, 1931. He had recently been referred to Dr. E. P. Edwards, who could find no clinical signs of pulmonary tuberculosis. His diagnosis was an infection of the upper respiratory tract which was responsible for the chest symptoms, and he referred the patient to us for a roentgen examination of the chest and sinuses. The patient, aged 35, was discharged eleven months ago from a tuberculosis sanatorium where he had spent the greater part of two years. He has colds continually; also frequent headaches, especially above the eyes. There was much nasal discharge and expectoration. The tonsils were removed three and a half years ago. The report of the roentgenographic study is as follows: "Fluoroscopic examination of the chest shows no evidence of fluid in either costophrenic angle and there is normal excursion of the diaphragm on each side. Stereoscopic roentgenograms show a generalized fibrosis branching out from each hilus and of the ascending and descending trunk shadows in each lung. There are no parenchymal changes, and in our opinion the fibrosis is due to a chronic nontuberculous infection. Roentgen examination of the sinuses shows a marked increased density of each antrum, evidently due to thickening of the membrane from a chronic sinusitis. Injection of iodized oil in each antrum indicates polyp formation." A rhinologist then did a bilateral Caldwell-Luc operation, and polyps were found in each antrum.

These histories are typical of a sinus chest infection. The clinical symptoms may closely simulate active pulmonary tuberculosis. Râles and elevation of tem-

perature are present. A careful history should prompt a roentgen examination of the sinuses in at least 9 per cent of chest cases examined. Fluoroscopic examination of the chest has very limited differential diagnostic value in determining early tuberculosis and no value in distinguishing early tuberculosis from chronic infection. When a known sinusitis exists, a stereoscopic chest study is indicated to determine the degree of pulmonary changes due to chronic infection. These roentgenograms have immense comparative value for later examinations.

10515 Carnegie Avenue.

## ABSTRACT OF DISCUSSION

DR. HENRY K. PANCOAST, Philadelphia: The finding of sinus disease means, of course, that infection in the lower respiratory tract is being kept up by a constant source from above. All realize that a sinus examination is quite essential in cases in which one finds lower respiratory changes, especially in the lower lobes, in both adult life and in childhood, and even in infancy. It is quite important to go into the history of these patients to determine what the underlying cause of the condition may be besides the constant source of infection from above. The patient may have had recurring pneumonia, a severe attack of influenza, or a lung abscess. These conditions may have caused interstitial change in the lungs, as a result of which dilatation of the bronchi may have resulted, with an approach to or an actual development of bronchiectasis. Oftentimes it is necessary for the bronchoscopist to aid in making a definite diagnosis of the underlying lung condition. Pleurisy with resulting adhesions and limitation of the movement of the dome of the diaphragm on one side may make the lower lobe on that side a vulnerable spot for recurring and continued infections. The frequency with which cases such as have been shown are referred for examination by asthma clinics shows also another side to the question. No doubt many of the patients suffer from allergic reactions and that aspect of the case may be cleared up by study in an asthma clinic. On the other hand, many persons with supposed asthma are referred to roentgenologists for examination and they find sinus conditions, or obtain histories of previous conditions which could have produced interstitial changes in the lungs. They may even find pneumonoconiosis or tuberculosis.

DR. LEON T. LE WALD, New York: Dr. Osmond has brought up two important subjects in his paper. One of them is the limitation of the fluoroscope in examination of the lungs. I think that point cannot be stressed too much; not only is it impossible to make an accurate early diagnosis of pulmonary tuberculosis, but I have seen the other mistake made of a wrong diagnosis from a fluoroscopic examination alone. There was a case in the federal courts just the other day in which the question came up whether a man had healed tuberculosis or not. A doctor went on the stand and testified that the man had a cavity and, therefore, that he had an active tuberculosis. His opinion was based on fluoroscopic examination alone. Two roentgenologists went on the stand and testified that careful stereoscopic films showed there was not a cavity and that the several healed fibrotic lesions gave a somewhat circular shadow that was definitely resolved on the stereoscopic films into overlapping shadows. In spite of that fact, owing to the sympathy of the jury, I understand this man was awarded war risk insurance for total disability amounting to $10,000 on that fluoroscopic examination, which was inaccurate. I hope the case may be appealed and that Dr. Osmond will testify to what he said here. The other point is that I don't think the roentgenologist need hesitate when a case is sent to him for diagnosis of the respiratory tract to make a roentgen examination of the sinuses when he feels it is a necessary part of the examination. If one sends a patient to an ophthalmologist for presbyopia and asks to have glasses fitted and the ophthalmologist simply prescribes glasses without looking at the retina, overlooking albuminuric retinitis or a detached retina or a hemorrhage, he would be considered negligent. I don't want to go so far as to say that the roentgenologist, if he didn't make a sinus examination and the sinus lesion existed, would be regarded as not having done his full duty. A case cited by Dr. Pancoast of a button in a child's nose is an excellent example of a dramatic incident. If that had been overlooked by the first roentgenologist and another roentgenologist had found the button, the first roentgenologist would probably be considered not to have made an adequate examination.

DR. KENNETH ALLEN, Denver: It is quite possible for a child or a young adult to have nasal accessory sinus disease combined with pulmonary tuberculosis, so that if one examines the chest and suspects a chronic infection of nontuberculous type in the respiratory tract and then examines the sinuses and finds that they are diseased, one must be a little careful not to say immediately that the case is not tuberculosis. One differential point in the study of these chests, especially the early adult type of individual, is that, in the nontuberculous chest infection which accompanies nasal accessory sinus disease, the thickening of the trunk shadows has a tendency to be symmetrically distributed. Another differential point is that the nontuberculous intensification of trunk shadows is more marked near the hilus, diminishing peripherally, whereas tuberculosis is asymmetrical, the disease more often reaching the periphery and not diminishing from the hilus outward. Furthermore, the tuberculous case has a tendency to show enlarged lymph nodes near the hilus, whereas the nontuberculous infection has not. I believe one must still consider the possibility of tuberculosis, even though there is sinus disease, and these chest signs among others will help in the differentiation.

DR. JOHN D. OSMOND, Cleveland: Physicians in general practice must gradually become accustomed to looking for complication of sinus disease such as I have described, or in the examination of all chest cases. There is a tuberculosis clinic outside of Cleveland where in twenty-five cases examined the physician found four sinus complications. It just adds evidence to what has been stated with regard to this condition.

# EFFECTS OF SPINAL ANESTHETICS ON THE SPINAL CORD AND ITS MEMBRANES

### AN EXPERIMENTAL STUDY *

LOYAL DAVIS, M.D.; HALE HAVEN, M.D.
J. H. GIVENS, M.D.
AND
JOHN EMMETT, M.D.
CHICAGO

Based on the suggestion by Corning,[1] in 1885, that the intervertebral injection of cocaine solution would produce anesthesia sufficient for operations on the urethra and perineum, and on the perfection of the method of lumbar spinal puncture by Quincke [2] in 1891, the production of surgical anesthesia was established by the intrathecal injection of cocaine by Bier,[3] in 1899, and by Tait and Caglieri [4] in 1900. The development of stovaine by Fourneau,[5] in 1904, and of procaine (novocain) by Einhorn,[6] in 1905, not to mention the many other compounds used, and the clinical and technical methods developed by Barker,[7]

* Read before the Chicago Surgical Society, April 3, 1931.
* From the Department of Surgery and the Laboratory of Surgical Research, Northwestern University Medical School.

1. Corning, J. F.: Spinal Anesthesia and Local Medication of the Cord, New York M. J. **42**: 483-485, 1885.
2. Quincke, H. I.: Die Lumbalpunction des Hydrocephalus, Berl. klin. Wchnschr. **28**: 929-965, 1891.
3. Bier, A.: Versuche über Cocainsirung des Rückenmarkes, Deutsche Ztschr. f. Chir. **51**: 361-369, 1899.
4. Tait, D., and Caglieri, G. E.: Experimental and Clinical Notes on the Subarachnoid Space, Tr. M. Soc. California **30**: 266-283, 1900.
5. Fourneau, Ernest: Stovaine, anesthésique local, Bull. d. Soc. pharmacol. **10**: 141-148, 1904.
6. Einhorn, cited by Biberfels, J.: Pharmakologisches über Novocain, Med. Klin. **1**: 1218-1219, 1905.
7. Barker, A. E.: Clinical Experience with Spinal Analgesia in One Hundred Cases, Brit. M. J. **1**: 665-674, 1907.

Babcock,[8] Labat,[9] Pitkin[10] and others have served to establish spinal anesthesia firmly as an anesthetic agent in the armamentarium of the surgeon.

That the newer anesthetics and the methods of their administration and control have less disagreeable pharmacologic and physiologic manifestations than cocaine and its nearer relatives may be admitted. However, surprisingly little is to be found in the literature concerning the possible pathologic changes in the spinal cords of human beings or animals that have been subjected to intrathecal injections of the newer spinal anesthetics.

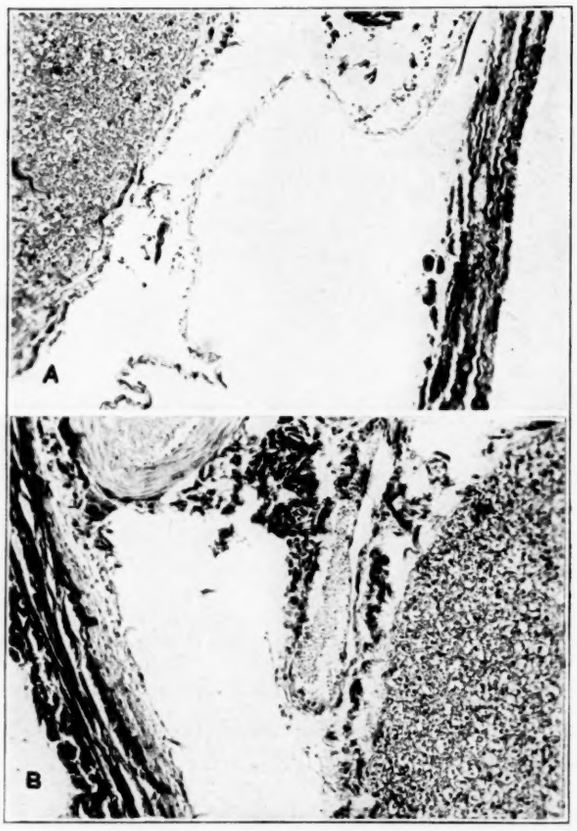



Fig. 1.—*A*, lumbar enlargement of the spinal cord of a dog seven days after injection of spinocaine into the lumbosacral dural sac; a moderate degree of inflammatory reaction is present. *B*, region of the lumbar enlargement thirty days after the injection of spinocaine showing fibrotic scarring on healing of an inflammatory reaction; van Gieson stain. Reduced from a photomicrograph with a magnification of 110 diameters.

Wossidlo[11] injected 5 per cent procaine hydrochloride into the subarachnoid space of dogs and found definite changes in the Nissl substance and the nucleus of the ganglion cells at intervals extending to twenty-four hours after injection. Pitkin[10] has reported no macroscopic or microscopic changes in the spinal cords of dogs that came to autopsy two, four, five and nine days after the injection of 5, 10 and 20 per cent solutions of procaine hydrochloride.

The preparations of spinal anesthetics in most common use among surgeons today, namely, nupercaine and such preparations as spinocaine, gravocaine and scurocaine, which contain procaine as the chief constituent, were selected to form the basis of this study. Dogs, as nearly as possible of the same general size, weight and age, were selected as the experimental animals. Each dog was injected with one ampule, or one full human dose of one of the aforementioned compounds. The animals were then killed by bleeding at intervals of twenty-four hours, seventy-two hours, seven days, thirty days and ninety days after the injection. The cords were removed and preserved in solution of formaldehyde for histologic study. Other animals were injected with a dose comparable to that given a human being as computed on a relative basis according to body weight. These dogs were killed three weeks and five weeks after injection. All the injections were made into the subarachnoid space in the lumbosacral dural sac, with a technic essentially the same in all respects as that used in performing lumbar puncture on the human being. Clear spinal fluid was obtained each time before injection and no anesthetic was used other than a preliminary hypodermic of morphine sulphate. Laminectomies were not performed in any instance. Control animals were used in which lumbar puncture alone was done. In all, thirty-seven animals were studied.

In all the dogs the paralysis and sensory loss were limited to the posterior extremities. Blood pressure tracings were not taken. There were no marked untoward effects noted except in those animals of the first group which received the injection of spinocaine. All of these dogs showed repeated tonic spasms in the fore limbs with hypernea which resembled the convulsions caused by strychnine. These spasms were absent in the animals of the second group which received the smaller dosage of spinocaine, but these too had hypernea.

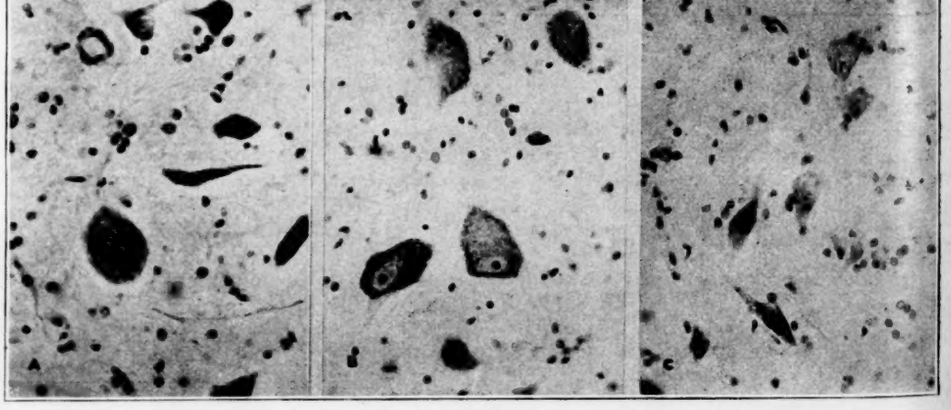



Fig. 2.—*A*, acute swelling in an anterior horn cell from the lumbar enlargement of the cord twenty-four hours after the injection of scurocaine. *B*, moderate swelling, eccentricity of the nucleus, dustlike Nissl substance about the nuclei and agglutination of Nissl substance about the periphery. Region of the lumbar enlargement three weeks after the injection of gravocaine. *C*, pale staining of the anterior horn cells with washed out appearance of the Nissl substance and edema of the nuclei; lumbar region, seven days after the injection of spinocaine. Cresyl violet stain. Reduced from a photomicrograph with a magnification of 325 diameters.

8. Babcock, W. W.: Spinal Anesthesia, an Experience of Twenty-Four Years, Am. J. Surg. **5**: 571-576 (Dec.) 1928.

9. Labat, G.: Elimination of Dangers of Spinal Anesthesia, Am. J. Surg. **5**: 625-632 (Dec.) 1928.

10. Pitkin, G. P.: Controllable Spinal Anesthesia, Am. J. Surg. **5**: 537-553 (Dec.) 1928.

11. Wossidlo, E.: Experimentelle Untersuchungen über Veränderungen der Nissl'schen Granula bei der Lumbalanästhesie, Arch. f. klin. Chir. **86**: 1017-1053, 1908.

Five animals died within twenty-four hours after the injection irrespective of the drug injected and after apparently having recovered the use of their paralyzed extremities. These were not considered as part of the test group but the histologic picture present differed in

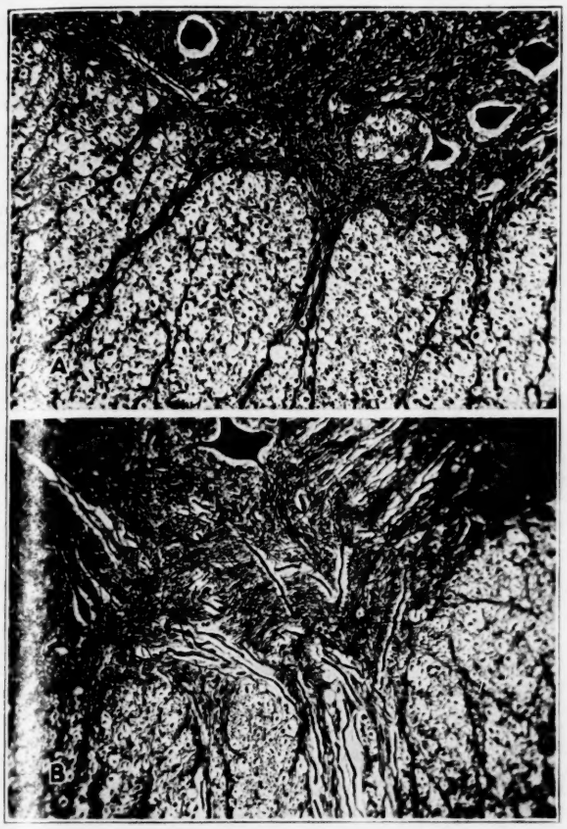


Fig. 3.—*A*, normal axis cylinders in the region of the anterior roots; cervical enlargement seven days after the injection of gravocaine. *B*, swollen and fragmented axis cylinders in the region of the anterior roots in the same animal; lumbar enlargement, seven days after the injection of gravocaine. Davenport stain. Reduced from a photomicrograph with a magnification of 95 diameters.

no way from that in the dogs that were killed at the end of twenty-four hours. All the animals of the first group had complete anesthesia of the posterior limbs together with a complete paralysis. Those of the second group, which received the smaller doses of the anesthetics, showed a good anesthesia of the posterior limbs in all cases but never a complete paralysis.

For the histologic studies, sections were taken from the middle of the cervical enlargement, the mid-dorsal region, the middle of the lumbar enlargement and the sacral region. These were stained by the hematoxylin-eosin, van Gieson, cresyl violet, Cajal silver stain method as modified by Davenport for embedded material, and the Marchi method.

The most constant change from the normal control picture was the apparent meningeal reaction, which was present to a variable degree in each case. It was more marked in those animals which had received the larger doses than in those of the second group. This consisted for the most part of an inflammatory reaction in the arachnoid with a thickening of the membrane and collections of proliferated arachnoidal cells and of plasma cells in the interstices of the membrane (fig. 1 *A*). In some areas there were collections of polymorphonuclear cells, but no bacteria could be found after diligent search. For the most part, the exudates were of the lymphocytic type. In the animals killed after thirty and ninety days, organization of this inflammatory reaction with fibrotic scarring of the meninges could be seen (fig. 1 *B*). This reaction was most marked in the lumbar and sacral regions of the cords examined and gradually diminished through the dorsal and cervical segments.

The changes observed in the ganglion cells are comparable to those described by Spielmeyer[12] following the use of stovaine intraspinally, but were not quite as pronounced as the changes described by him. Occasionally a cell was seen in an acutely swollen condition in the cords of the animals that received the larger doses and that were killed from three to seven days after injection (fig. 2 *A*). The most common picture found was a moderate degree of swelling of the cells, an edema of the nuclear membrane, an eccentricity of the nucleus and a finely granular appearance of the Nissl granules about the periphery of the cell (fig. 2 *B*). This was present in the anterior horn cells of the lumbar and sacral segments of all the animals irrespective of the size of the dosage or the drug injected. This condition is recognized as being a stage of retrograde degeneration. Spielmeyer was able to show that it was due to the action of the anesthetic solution on the anterior roots. We observed also an almost complete

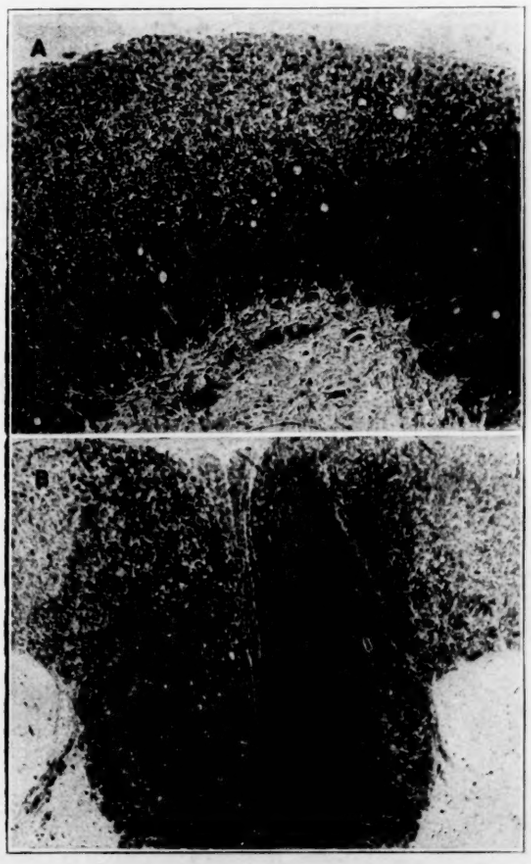


Fig. 4.—*A*, late stages of Marchi degeneration in the anterolateral region of the lumbar cord three weeks after the injection of scurocaine. *B*, degeneration in the posterior columns of the lumbar region three weeks after the injection of nupercaine. Marchi stain. Reduced from photomicrographs with a magnification of 65 and 75 diameters.

failure of some of the smaller cells to stain. The Nissl granules had a faded appearance and the nuclei of the cells stained lightly or not at all (fig. 2 *C*). How-

12. Spielmeyer, W.: Veränderungen des Nervensystems nach Stovainanästhesie, München. med. Wchnschr. **55**: 1629-1634, 1908.

ever, in the cords of those animals killed ninety days after injection we were able to find but few abnormalities in the appearance of the ganglion cells.

After impregnation by the silver stain the axis cylinders showed no abnormalities in the cervical and dorsal regions (fig. 3 *A*). In the lumbar and sacral regions there were swelling and fragmentation of the axons in animals killed after twenty-four and seventy-two hours, seven days and three weeks (fig. 3 *B*).

Specimens of the cords removed twenty and thirty days after injection and stained by the Marchi method revealed the same general picture of degeneration of the fiber tract as shown by Spielmeyer in his experiments with stovaine. The peripheral zones of the cords were affected in all cases to some degree (fig. 4 *A*). In the sacral regions the Marchi bodies were scattered rather diffusely throughout the cord. In the lumbar region the affected fibers were for the most part about the periphery of the cords and were more marked in the zones near the exit of the roots from the cord. In two animals, one with the smaller dosage of nupercaine and one with the larger dosage of spinocaine, an area was noted in the posterior columns in the lumbar region suggestive of ascending root degeneration (fig. 4 *B*). These areas were not seen, however, in the dorsal or cervical regions of the same cords.

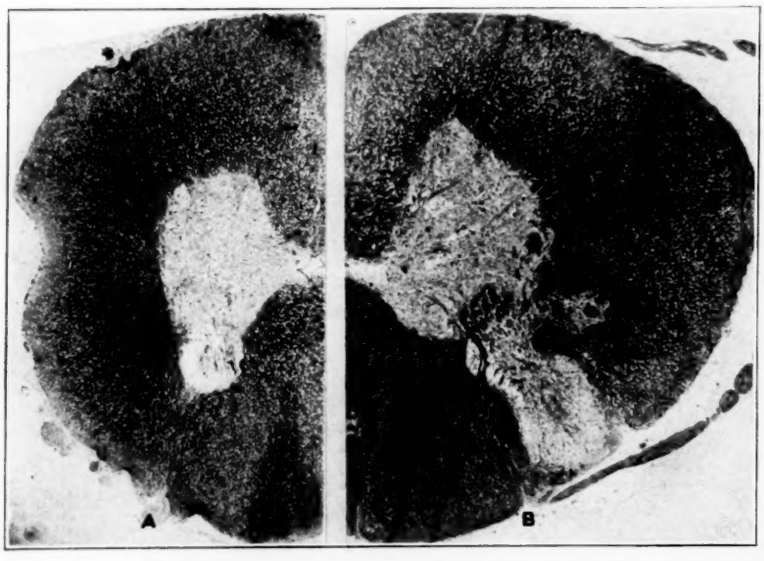



Fig. 5.—*A*, demyelinated zone about the periphery of a cord incubated in 1:100 spinocaine solution in physiologic solution of sodium chloride. *B*, control incubated in physiologic solution of sodium chloride alone, showing no zone of demyelination. Weil stain. Reduced from a photomicrograph with a magnification of 27 diameters.

Since Weil[13] has recently shown that hemolytic toxins are also myelolytic and in view of the myelin changes noted in the Marchi stained sections of these animal cords, it was decided to conduct the following two experiments:

Following the technic used by Weil, pieces of spinal cord were removed from an animal killed by bleeding and subjected to incubation in various dilutions of these spinal anesthetics. Other pieces were incubated in physiologic solution of sodium chloride as controls. Aseptic precautions were used throughout. The dilutions varied from 1:10 to 1:200 parts of the anesthetic solution in sterile physiologic solution of sodium chloride. The pieces of cord, after eighteen hours' incubation, were fixed in solution of formaldehyde, embedded in celloidin, and stained with Weil's stain. A zone of demyelination was present about the periphery of all the cords subjected to incubation with the anesthetic solutions, while those incubated in the physiologic solution of sodium chloride alone failed to show this (fig. 5).

Experiments were also performed to determine the hemolytic action of the anesthetic solutions used in the animal experiments. Test tubes containing dilutions of the anesthetics in physiologic solution of sodium chloride, from 1:10 to 1:320, were set up with controls of physiologic solution of sodium chloride alone. To these were added washed corpuscles of human blood. They were then placed in an incubator at 37 C. for one and a half hours after which time hemolysis was found to be complete in all the tubes except the controls. Similar dilutions and controls were allowed to stand at room temperature for eighteen hours. After this time the control tubes were noted to consist of a layer of corpuscles which had settled in the bottom with clear saline solution above them. The tubes with the anesthetic solutions in them were seen to have a smaller layer of corpuscles in the bottom, a variable layer of reddish coloring above this, and clear fluid on top. An equal amount of the clear fluid from the top was decanted off from each of these tubes into another tube and each diluted with an equal amount of distilled water. The clear fluid was also decanted from above the corpuscles of the control tubes and diluted to the same degree. An equal amount of distilled water was placed in a third tube and an equal amount of physiologic solution of sodium chloride was placed in a fourth tube. To each of these tubes was added five drops of 1 per cent nile blue sulphate solution. The tubes containing the distilled water, the physiologic solution of sodium chloride and the decanted solution from the control tubes were all colored a light blue by the diffusing dye. Those tubes which contained equal amounts of clear fluid decanted from above the hemolysis taking place in the bottoms of the tubes containing the anesthetic solutions were all colored green by the dye diffusing through the solution. This was due to the lipoids which were freed in the solution by the lytic action of the anesthetic solutions on the walls of the red cells. These lipoids apparently diffused through the solution faster than the red color of the hemolysis.

13. Weil, A.: Die Wirkung von Schlangengiften auf Nervengewebe, Arch. f. exper. Path. u. Pharmakol. **154**: 228-238, 1930.

## SUMMARY

The spinal anesthetic solutions in common use today are hemolytic as well as myelolytic and would seem to act on the myelin of the nerve fibers as they do on the lipoids of the red blood cell membrane causing its dissolution.

After the injection of the spinal anesthetics in most prevalent use today into the spinal dural sacs of dogs, we have observed the following changes:

1. A varying degree of inflammatory reaction in the leptomeninges.
2. Passive changes in the ganglion cells of the gray matter of the cord similar to those seen in retrograde or so-called wallerian degeneration.
3. Swelling and fragmentation of the axis cylinders.
4. Signs of degenerative changes in the fiber tracts of the cord.

The fact that the last three of these changes were not pronounced in the cords of animals which were allowed to live ninety days speaks against their permanent nature. This is also suggested by the incomplete picture of degeneration in the ganglion cells and the absence of Marchi evidence of degeneration in the cervical and dorsal segments. However, the inflammatory changes in the leptomeninges were so constantly present that they cannot be overlooked.

We hope to extend these studies to the spinal cords of human beings and to incorporate our results with those clinical observations which have been made in a careful neurologic examination of patients who have been operated on under spinal anesthesia. In many instances neurologic complications have been present for as long as a year after the injection of the spinal anesthetic.

54 East Erie Street.

---

# COMMON ANOMALIES OF DUODENUM AND COLON: THEIR PRACTICAL SIGNIFICANCE

## RESULT OF EIGHT YEARS' COMBINED CLINICAL AND ROENTGEN STUDY *

JOHN L. KANTOR, M.D.
NEW YORK

This paper embodies the result of eight years' study of those anomalies of the digestive tract susceptible of roentgen demonstration. At various times Drs. Samuel Schechter and Jerome A. Marks have collaborated in this research. The material used for this study comprises a consecutive series of 3,000 private patients complaining of digestive disorders, approximately three fifths of whom had test meals and roentgen surveys in addition to the routine history and physical examination. The statistical method of attack was employed throughout in the belief that this would yield results most likely to be objective in nature and most open to confirmation or refutation by others. Having no preconceived notions to establish, we have been satisfied with presenting the facts first, leaving the matter of speculation to follow later. Nevertheless, before proceeding to a more detailed consideration of individual anomalies, it may be of value to formulate certain generalizations that have grown out of our study:

1. Anomalies may be regarded as expressions of organic constitutional inferiority or, in other words, points of actual or potential weakness in the body structure.

2. Anomalies may be divided into three classes: those incompatible with life (congenital atresia of the bile ducts), those compatible with life but not with robust health (high grade visceroptosis), and those compatible with life and health under favorable circumstances (uncomplicated Meckel's diverticulum).

3. The general tendency seems to be for the body as a whole to compensate for the presence of an anomaly. Hence symptoms do not occur unless this compensatory mechanism breaks down. This break may result from any of the following causes:

(*a*) Mechanical factors, such as strangulation of a silent Meckel's diverticulum.

(*b*) Infection, which may change a diverticulosis into a diverticulitis.

(*c*) Juxtaposition of two or more anomalies, such as the presence of ectopic gastric mucosa in a Meckel's diverticulum, which may lead to hemorrhage or perforation.

(*d*) Old age and increasing asthenia, especially prominent in the case of all hernias and herniations, in which the weak spots exist from birth but the fully developed condition occurs later in life.

(*e*) Associated functional instability. When neuroses and anomalies coexist, the former furnishes the underlying functional instability—the break in compensation—and the anomaly furnishes the particular digestive symptomatology for the clinical picture.

4. Because of variations in the compensatory mechanism, the symptomatology of anomalies is not continuous or progressive as in ordinary diseases. Thus, anomalies may cause symptoms in some of their owners all of the time, and in all of their owners some of the time, but are under no obligation to cause symptoms in all of their owners all of the time. This is the chief single differential between an anomaly and an acquired lesion and is of great importance in appraising the practical significance of anomalies.

In this paper we plan to bring up to date our original observations on anomalies of the colon and to present, in addition, some new data concerning the subject of duodenal bands.

### DUODENAL BANDS

*Historical Outline.*—The occurrence of structures variously described as veils, membranes, adhesions, bands or ligaments in the right upper quadrant of the abdomen has long been known to anatomists. As far back as 1845, Huschke [1] described the ligament (ligamentum hepaticoduodenale) which bears his name. Since then, noteworthy anatomic studies have been contributed by Ancel and Sencert,[2] Harvey,[3] Bryant,[4] Makai [5] and Diebold.[6] In the past twenty-five years, surgeons have rediscovered these structures, the most important contributions being those of Morris,[7] Konjetzny,[8] Harris,[9] Homans,[10] Bainbridge,[11] Widerøe,[12] Taylor,[13] and the Kelloggs.[14] A careful roentgen study was made by Cole [15] in 1922. The outstanding clinical contributions are those of Niles,[16] and Duval, Roux and Béclère.[17] Transduodenal bands in children were

---

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Huschke, E.: Encyclopédie anatomïque, Paris, Baillière **5**: 199, 1845.
2. Ancel, P., and Sencert, L.: Morphologie du péritoine et des ligaments hépatiques accessoires chez l'homme, J. de l'anat. et de la physiol. **319**: 353-389, 1903.
3. Harvey, S. C.: Congenital Variations in the Peritoneal Relations of the Ascending Colon, Cecum, Appendix and Terminal Ileum, Ann. Surg. **67**: 641-687 (June) 1918.
4. Bryant, John: Visceral Adhesions and Bands; Normal Incidence, Am. J. M. Sc. **163**: 75 (Jan.) 1922; **165**: 111 (Jan.) 1923.
5. Makai, E.: Ueber angeborene peripylorische Membranen, Arch. f. klin. Chir. **138**: 131-133, 1925.
6. Diebold, O.: Ueber Bauchfellverwachsungen Leichenbefunde bei 700 Sektionen, Arch. f. klin. Chir. **158**: 737-757, 1930.
7. Morris, R. T.: Gall Spider Cases, Am. Med. **10**: 95-97, 1905.
8. Konjetzny, G. E.: Pathologische Anatomie und Physiologie der Gallenblasen- und Gallengangserkrankungen, Ergebn. d. allg. Pathol. u. path. Anat. **14**: 712-873, 1910.
9. Harris, M. L.: Constrictions of the Duodenum Due to Abnormal Folds of the Anterior Mesogastrium, J. A. M. A. **62**: 1211-1215 (April 8) 1914.
10. Homans, J.: Symptoms and Treatment of Congenital Transduodenal Bands: Report of Eleven Cases, Boston M. & S. J. **175**: 665-673 (Nov. 9) 1916.
11. Bainbridge, W. S.: A Study of Certain Bands in the Right Upper Abdominal Quadrant, M. Rec. **97**: 593-598 (April 10) 1920.
12. Widerøe, S.: Primary Duodenal Adhesions, Norsk Mag. f. Laegevidensk. **83**: 89-102 (Feb.) 1922.
13. Taylor, A. S.: Anomalous Abdominal Membranes; Their Influence upon the Digestive Tract, Ann. Surg. **75**: 513-574 (May) 1922.
14. Kellogg, E. L., and Kellogg, W. A.: Chronic Duodenal Stasis, Radiology **9**: 23-38 (July) 1927.
15. Cole, L. G.: Veils in the Right Hypochondrium and Their Differentiation from Other Organic Lesions and Spasm, Am. J. Roentgenol. **9**: 137-148 (March) 1922.
16. Niles, W. L.: Congenital Fixation of Duodenum, Am. J. M. Sc. **169**: 328-336 (March) 1925.
17. Duval, Pierre; Roux, Jean-Charles; and Béclère, Henri: The Duodenum; Medical, Radiologic and Surgical Studies, St. Louis, C. V. Mosby Company, 1928.

studied clinically by Neff and Haden,[18] and were discussed at a symposium before the New York Academy of Medicine by Stockard,[19] Imboden,[20] Haynes [21] and Farr.[22] Despite the work done to date, it seems safe to say that this condition, especially its clinical picture, is not yet well understood by the profession at large.

*Description and Roentgen Appearance.*—Duodenal bands represent anatomically the unabsorbed portion of the free edge of the lesser (hepatogastric) omentum and are called variously hepatoduodenal, hepatocolic or cystocolic ligaments, depending on the actual course of the anomalous membranes. They either cross or are attached to the duodenum in its first or second portion. When the first portion alone is involved, various deformities of the cap are produced in the roentgen appearance. This group is not discussed here, the present study dealing exclusively with bands involving the second portion of the duodenum. The latter cause a characteristic roentgen appearance (fig. 1) when the patient is examined in the erect anteroposterior position immediately after the stomach has begun to empty the opaque meal. Under these circumstances the second portion of the duodenum appears pulled out to the right (for a varying distance and at a varying angle) instead of descending parallel to or behind the antrum of the stomach, as in the normal condition. In extreme cases the entire second portion is displaced in this fashion, but in others only the uppermost part and less often some other segment of the descending limb is so involved. In many cases a sharp angle results between the fixed upper and the free lower portion. This arrangement acts as a point of irritation or transient obstruction. Marked stasis, such as is usually described in the literature under the term "duodenal obstruction," is not noted. Retroperistalsis was observed in at least 10 per cent of our cases. Adhesions to the hepatic flexure of the colon were occasionally demonstrable. The most common associated anomaly is a low cecum, which we observed twice as often (36 per cent) as in our unselected material (18 per cent).

Fig. 1.—Roentgen appearance of duodenal bands pulling second portion of duodenum to right.

Most of the bands in the right upper quadrant are undoubtedly of congenital origin, although of course it would appear that acquired adhesions may also occur. Harvey found that the development of the cystocolic fold reaches a stable condition sometime previous to birth, and Bryant has shown that the incidence of these bands in the fetus is practically the same as that in the adult up to the age of 40 years. Makai found them frequently in infants and young children.

18. Neff, F. C., and Haden, R. L.: Congenital and Transduodenal Bands, Am. J. Dis. Child. **30:** 82-86 (July) 1925.
19. Stockard, C. R.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.
20. Imboden, H. M.: Developmental Peritoneal Bands in Children, Unpublished manuscript, 1931.
21. Haynes, R. S.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.
22. Farr, C. E.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

*Incidence.*—Adhesions of the second portion of the duodenum were encountered 85 times in our series of 1,754 roentgenographed patients, an incidence of 4.8 per cent. A search of the literature discloses no exactly comparable figures, but anatomic studies of the bands in this neighborhood, viz., hepatoduodenal, hepatocolic and hepatoduodenocolic, reveal an incidence of from 15.5 to 30 per cent. In fact, Bryant has shown that the hepatocolic ligament is the most frequent congenital adhesion in both sexes and at all ages. This discrepancy between the roentgen and the postmortem evidence can probably be explained either by the fact that adhesions of the first portion are excluded in our present series, or because the existence of some of the bands may have been overlooked at examination. The presence of duodenal bands was operatively confirmed in six of our cases.

TABLE 1.—*Duodenal Bands*

| INCIDENCE | Per Cent |
|---|---|
| General, in 1,754 roentgenographed patients | 5 |
| Sex: | |
| Females | 79 |
| Males | 21 |
| Habitus: | |
| Asthenics | 53 |
| Sthenics | 8 |
| Associated low cecum (general incidence 18%) | 36 |

| CLINICAL FEATURES | Per Cent |
|---|---|
| Nausea (general incidence 15%) | 44 |
| Headaches (general incidence 23%) | 44 |
| Vomiting (general incidence 20%) | 41 |
| Vertigo (general incidence 3%) | 20 |
| Constipation (general incidence 46%) | 54 |
| Pain, upper abdominal (general incidence 28%) | 40 |
| Appendicitis, operation (general incidence 17%) | 17 |
| Appendicitis, "pus" (general incidence 16%) | 8 |

*Sex.*—Sixty-seven of our patients (79 per cent) were females and 18 (21 per cent) were males. Practically the same incidence is reported by other clinical observers. Thus, Niles gives 80 per cent females in thirty-nine cases, and Taylor gives 74 per cent females in forty-seven cases chiefly of this variety. On the other hand the anatomists report that the distribution of these bands is approximately equal between the sexes (Bryant, 297 cases), or else decidedly favors the males (Harvey, 20 cases; Ancel and Sencert, 124 cases; Makai, 100 cases). The explanation of this discrepancy is not yet at hand.

*Habitus.*—In our group, forty-five patients (53 per cent) were asthenic and but seven (8 per cent) were sthenic.

*Symptoms.*—Only ten (11.7 per cent) of our cases showed no symptoms that could be definitely referred to the presence of duodenal bands. In the majority of cases the symptoms are characteristic enough to constitute a fairly definite clinical picture. The manifestations may be described as falling into two groups: reflex or toxic, and local. The former have been described in the literature under the name "duodenal migraine." They are in every way comparable to the reflex manifestations of low cecum. Nausea was present in thirty-eight cases, an incidence of 44 per cent, which is to be contrasted with a general incidence of 15 per cent in our 3,000 unselected cases. Headaches were also present in 44 per cent, to be compared with a general incidence of 23 per cent. Vomiting, frequently of bile, was present in thirty-five cases, an incidence of 41 per cent, as against a general incidence of 20 per

cent. Vertigo was present in 20 per cent, as against a general incidence of 3.5 per cent. Constipation occurred in forty-six patients, an incidence of 54 per cent) somewhat higher than the general frequency of this complaint (46 per cent).

All these complaints are closely linked with the nervous instability of these patients, as in the case of low cecum, which will be described later.

The local symptoms are epigastric distress or pain. Pain occurred in forty-four cases, or 40 per cent, but, as associated organic lesions could not be excluded in thirteen cases, the incidence of pain due to bands as such is perhaps to be conservatively estimated as being nearer 25 per cent. In any event, our observations correspond closely to those of Niles (30 per cent "painful cases"). The pains are either of the hunger type suggestive of duodenal ulcer or of the more irregular and spasmodic type resembling gallbladder disease. However, their intensity seems to be less than in organic lesions. As may be expected, they are referred to the middle and right portions of the epigastrium. They are sometimes relieved by food and by the recumbent prone or right lateral position.

A previous appendectomy had been performed in 30 per cent of our cases (general incidence, 17 per cent), and a pus condition (general incidence, 16 per cent) was revealed in only 8 per cent of this number. The high incidence of this operation, which has also been pointed out by Taylor and Niles, may possibly be explained by the relatively frequent association of low cecum, a condition in which the incidence of previous appendectomy is unusually high.

*Explanation of Symptoms.*—It has been emphasized that in the cases we are discussing there is no gross obstruction but rather a relatively mild irritation of the duodenum associated with transient stasis or reversal of motility. Clinically, it is well known that a small delay high in the intestinal tract may be followed by more widespread systemic upset than a much greater stasis lower in the bowel. It has been shown experimentally by Ivy,[23] Keeton,[24] Wheelon [25] and others that the nausea, vomiting and many related symptoms (all of which may occur in the cases under discussion) are elicited by duodenal stimulation or irritation. It is particularly interesting to note that, of the sixty patients in whom Keeton injected solutions into the duodenum, twenty-six, or 43 per cent, showed nausea. Since this figure corresponds exactly with the incidence of nausea and vomiting in our cases, it may possibly represent the actual average frequency of response by vomiting to duodenal irritation in the human subject.

The association of low cecum with duodenal bands (also mentioned incidentally in some of Taylor's protocols) may still further increase the temporary duodenal stasis. The possible mechanism involved will be discussed later.

23. Ivy, A. C.; Vloedman, D. A., and Keane, J.: The Small Intestine in Hunger, Am. J. Physiol. **72**: 99 (March) 1925.
24. Keeton, R. W.: Nausea and Related Sensations Elicited by Duodenal Stimulation, Arch. Int. Med. **35**: 687-697 (June) 1925.
25. Wheelon, Homer: Symptoms Associated with Duodenal Retention and Reverse Motility, J. A. M. A. **86**: 326-330 (Jan. 30) 1926.

*Treatment.*—Medical management suffices to control the symptoms in most cases. The treatment should be directed toward correcting the ptosis and malnutrition, improving the nervous stability and restoring the colon function. Rest in the prone position after meals, and hot saline drinks in the fasting state are sometimes helpful. If conservative measures fail, results may be expected from surgical therapy. The procedure consists essentially of division of the adhesions; in some cases short circuiting operations are needed. Four of our own patients were operated on, all with relief, the longest period of observation being three years. In Taylor's cases, 32 per cent of the patients were cured and 52 per cent were much relieved. The operative mortality was 2 per cent. Niles "knows of no abdominal condition which affords a greater assurance of relief by surgery." It is obvious that such good results can be secured only by careful study, observation and selection of cases.

### REDUNDANT COLON

*Description and Roentgen Appearance.*—The redundant colon (dolichocolon) is one which is too long to fit into the body of its owner without undergoing reduplication. The distal colon is the part usually though not invariably affected, the most common variety being an enlarged sigmoid loop centrally placed and rising well out of the pelvis (fig. 2). Two subvarieties are encountered often enough to receive the descriptive terms "double splenic flexure with straight efferent loop" (fig. 3) and "pelvic loop to the right" (fig. 4). Kinks of the colon, presumably due to adhesions, are rather frequent. Of these, 107 cases were encountered in our series but have been excluded from the group of true redundant colons and are not here discussed. Hirschsprung's disease differs from the redundant colon by the presence of enormous dilatation of the affected loops in the former.

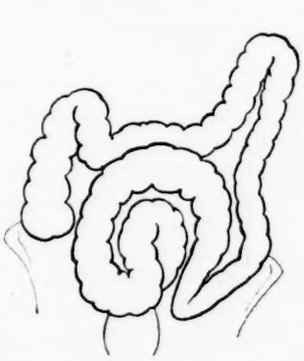


Fig. 2.—Redundant colon: large central pelvic loop.

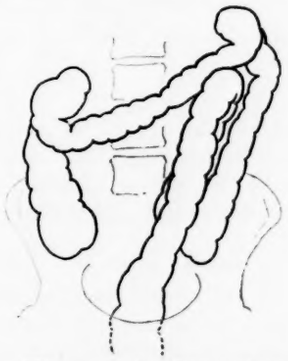


Fig. 3.—Redundant colon: double splenic flexure with straight efferent loop.

Fig. 4.—Redundant colon: pelvic loop to right.

The diagnosis of redundant colon is made by roentgen examination after the opaque enema to show the form, and after the opaque meal to show the function, of the large intestine. The amount of enema fluid necessary to fill to the cecum averages 46 ounces in redundant colons and has reached as high as 120 ounces. These figures are to be contrasted with the average 38 ounces required to fill the normal colon completely.

In many cases the stomach is displaced and deformed. The usual displacement is to the right and, since the cardiac end is fixed, the resulting appearance has been termed "cascade" stomach. In some cases the stomach is inverted or rotated on its horizontal axis so that it becomes retort shaped.

*Incidence.*—In 1,614 roentgenographed patients, 258 cases of redundant colon were encountered, an incidence of 16 per cent. Analysis of this relatively large group shows that the anomaly affects both sexes (54 per cent females) and both extremes of habitus (28 per cent sthenics vs. 24 per cent asthenics) with approximately equal frequency. Previous discrepancies may be explained on the basis of insufficient material.

*Clinical Picture.*—Since the publication of our first study [26] in 1924, other clinicians (Larimore,[27] White,[28] Gauss,[29] Dagnino [30]) have agreed that this anomaly

TABLE 2.—*Redundant Colon*

| INCIDENCE | Per Cent |
|---|---|
| General, in 1,614 roentgenographed patients | 16 |
| Sex: | |
| Females | 54 |
| Males | 46 |
| Habitus: | |
| Sthenics | 28 |
| Asthenics | 24 |
| **CLINICAL FEATURES** | **Per Cent** |
| Constipation (general incidence 46%) | 69 |
| Gas distress (general incidence 38%) | 70 |
| Pain, abdominal (general incidence 47%) | 52 |
| Pain, right lower quadrant (general incidence 9%) | 12 |
| Tenderness right lower quadrant (general incidence 19%) | 24 |
| Appendicitis, operation (general incidence 17%) | 19 |
| Appendicitis, "pus" (general incidence 16%) | 16 |

probably represents a definite entity with a constant incidence and clinical picture. Although, as with all anomalies, symptoms may be absent or variable, the combination of constipation, pain and gas distress is characteristic.

The constipation, which is present in 69 per cent of cases (general incidence, 46 per cent), usually dates from birth, is characterized by long intervals between stools (often one week), and is on the whole not associated with marked systemic or general upsets. Gas distress is present in 70 per cent of cases as against a general incidence of about 38 per cent in our unselected material. There is often localized distention corresponding to the redundant loop, or else belching in a misdirected effort to relieve pressure in the splenic flexure.

Pain is present somewhere in the abdomen in 52 per cent of the cases (general incidence, 47 per cent). It is always due to superimposed spasm proximal to the point of redundance and may be associated with localized colitis, especially in patients who have acquired the cathartic or enema habit. The pains may suggest carcinoma, heart disease, gallbladder disease or appendicitis. Pain in the right lower quadrant was present in 12 per cent (general incidence, 9 per cent), and tenderness in the right lower quadrant occurred in 24 per cent (general incidence, 19 per cent). Appendectomy was performed in 19 per cent as compared to a general incidence of 17 per cent in our basic 3,000 cases.

Volvulus, although not encountered in this series, can occur only when the mesentery is elongated, as in redundant colons. It is our opinion, confirmed by the actual observations of several surgeons, that this accident usually follows violent efforts at purgation, resulting in irregular and atypical peristalsis.

*Treatment.*—The management of redundant colon consists essentially in the withdrawal of all forms of colonic abuse and the restoration of normal function by conservative procedures. The details of this therapy have been published elsewhere. The prognosis for relief is good. Surgical intervention should be reserved for cases of volvulus only.

### THE HIGH CECUM

*Description and Roentgen Appearance.*—The cecum may be arrested in its embryologic descent at any stage between the liver and its normal resting place, which is the middle of the right iliac fossa. Since subhepatic ceca are rare (fig. 5)—we encountered but twenty-one cases in which the cecum was at or above the iliac crest—we have included all ceca occupying a position not lower than the upper third of the iliac fossa in a group which we have arbitrarily designated "high cecum" (fig. 6). The exact roentgen criteria delimiting this group have been published elsewhere.[31]

The diagnosis of high cecum is best made roentgenologically nine hours after the ingestion of an opaque meal. In some cases the cecum is attached to the liver, but the proximal transverse colon hangs down, festoon-like, in such fashion as to resemble a normal ascending segment. This may cause confusion unless observations are made in the right oblique position. In some 4 per cent of cases (general incidence, 2 per cent) the vacant right iliac fossa is occupied by a loop of pelvic colon. This arrangement has already been described as a subvariety of the redundant colon. Its recognition is of some clinical importance because it may still further confuse surgeons in their attempt to locate the ectopic appendix in emergency operations in cases presenting high cecum.

TABLE 3.—*High Cecum*

| INCIDENCE | Per Cent |
|---|---|
| General, in 1,583 roentgenographed patients | 6 |
| Sex: | |
| Males | 73 |
| Females | 27 |
| Habitus: | |
| Sthenics | 71 |
| Asthenics | 5 |
| **CLINICAL FEATURES** | **Per Cent** |
| Headaches (general incidence 23%) | 18 |
| Vomiting (general incidence 20%) | 20 |
| Constipation (general incidence 46%) | 35 |
| Appendicitis, operation (general incidence 17%) | 24 |
| Appendicitis, "pus" (general incidence 16%) | 36 |

*Incidence.*—In our series of 1,583 roentgenographed cases, high ceca were observed in 102 (6 per cent). Males predominated strikingly over females (73 per cent vs. 27 per cent), as did sthenics (71 per cent) over asthenics (5 per cent).

*Clinical Picture.*—On the whole, this group is composed of robust individuals remarkably free from the common manifestations of functional digestive upset. In this respect they offer a striking contrast to the group of patients with low cecum next to be described.

26. Kantor, J. L.: A Clinical Study of Some Common Anatomical Abnormalities of the Colon: I. The Redundant Colon, Am. J. Roentgenol. **12**: 414-430 (Nov.) 1924.
27. Larimore, J. W.: The Human Large Intestine in the New-Born and in the Adult, Ann. Clin. Med. **5**: 439-463 (Nov.) 1926.
28. White, F. W.: Studies of the Redundant Colon, Tr. Am. Gastro-Enterol. **29**: 132-146, 1927.
29. Gauss, Harry: Redundant Colon, Arch. Surg. **15**: 560-579 (Oct.) 1927.
30. Dagnino, Angel: Dolicocolias, Semana méd. **2**: 1780-1815 (Dec. 11) 1930.
31. Kantor, J. L., and Schechter, Samuel: Colon Studies: V. The High Cecum, Am. J. Roentgenol. **19**: 101-111 (Feb.) 1928.

Using headaches and vomiting as typical expressions of functional digestive disorders, we find that the incidence of these complaints (18 per cent and 20 per cent, respectively) is about that in normal ceca (i. e., in the general series) but is decidedly less than in low ceca.

Recalling the high incidence of constipation in redundant (long) colon, viz., 69 per cent, it is interesting to observe that constipation occurs in but 35 per cent of cases of high cecum. Since this figure is also appreciably lower than the general incidence of constipation in nonselected cases, it would appear safe to make the generalization that constipation varies directly as colonic length.

The relation of high cecum to appendicitis is interesting. In the first place, the appendix being located at or near the liver, instead of in the right iliac fossa, the clinical picture may resemble acute cholecystitis more than appendicitis. Furthermore, the presence of actual inflammation ("pus appendix") is over twice as likely (36 per cent) in high cecum as in the average appendectomy case (16 per cent) and more than three times more likely than in low cecum (10 per cent).

*Treatment.*—High cecum, as such, requires no treatment. One should take no chances with symptoms suggesting appendicitis and must be prepared to find the appendix high in the abdomen.

### THE LOW CECUM

*Description and Roentgen Appearance.*—The low cecum is the result of embryologic hyperdescent, the organ prolapsing below the right iliac fossa into the true pelvis. The anomaly furnishes a complete and striking contrast to the high cecum just described.

The diagnosis of low cecum is best made nine hours after the ingestion of the standard opaque meal. This anomaly may be said to exist when the cecal tip reaches down to or below the midpelvis, as determined by a horizontal line connecting the tops of both acetabular cavities on the standard prone film (fig. 7). In accordance with our concept that the low cecum represents a true overgrowth rather than a local expression of ptosis, the length of the cecocolon in these cases is increased from the average 7 inches (17.8 cm.) in the normal cecum to an average of 9 inches (22.9 cm.), with the maximum reaching 13 inches (32.5 cm). The cecal tip was fixed in 32 per cent of the cases. The rest of the cases showed a mobility of more than 1 inch (2.5 cm.).

The most common associated anomaly was represented by duodenal bands, as previously described, which occurred in 11 per cent of cases; i. e., over twice the general incidence.

*Incidence.*—The low cecum is the most common anomaly of the colon. It was observed 284 times in our series of 1,581 roentgenographed patients, an incidence of almost 18 per cent. Women make up 72 per cent of the patients, and asthenics predominate over sthenics in the proportion of four to one (48 per cent to 12 per cent).

*Clinical Picture.*—Low cecum is, we believe, responsible for a definite symptomatology. The complaints are of two orders; namely, general and local. The general symptoms are those ordinarily regarded as reflex or toxic in character. Chief among these are vomiting, which occurred in 43 per cent (general incidence, 20 per cent), and headache, which occurred in 38 per cent (general incidence, 23 per cent).

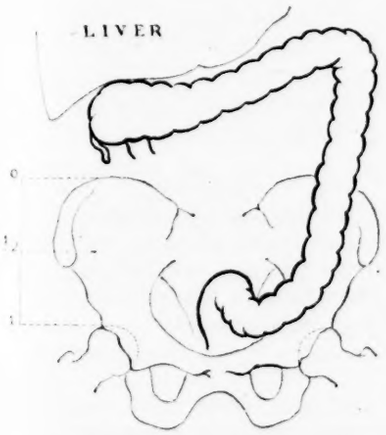



Fig. 5.—High cecum: subhepatic position (rare).

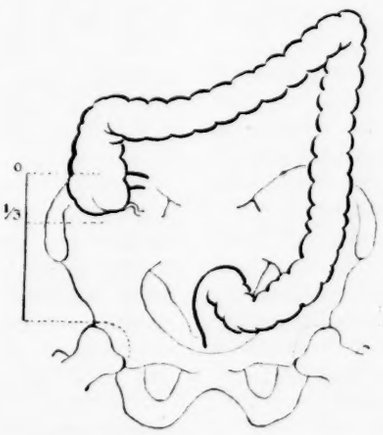



Fig. 6.—High cecum: common variety.

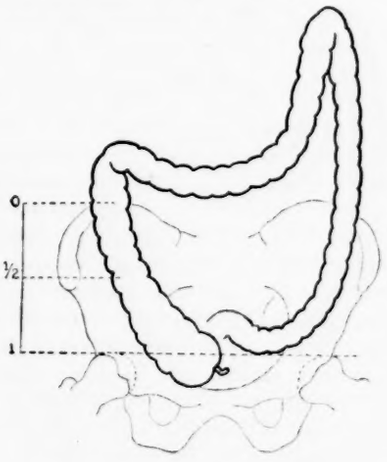



Fig. 7.—Low cecum, showing roentgen landmarks.

The vomiting in these cases is habitual and rather easy, being provoked by strain, fatigue, emotional excitement, dietary indiscretion, menstruation and headaches. The patient may take this symptom so much for granted that she may fail to mention it in the history unless specifically questioned.

The headaches are often of the migraine type and are caused by the same factors as is the vomiting. Both these major manifestations may be represented by less severe symptoms. Thus, vomiting may be replaced by nausea, train sickness or car sickness, and headaches

TABLE 4.—*Low Cecum*

| INCIDENCE | Per Cent |
|---|---|
| General, in 1,581 roentgenographed patients | 18 |
| Sex: | |
| Females | 72 |
| Males | 28 |
| Habitus: | |
| Asthenics | 48 |
| Sthenics | 12 |
| Associated duodenal bands (general incidence 5%) | 11 |

| CLINICAL FEATURES | Per Cent |
|---|---|
| Vomiting (general incidence 20%) | 43 |
| Headaches (general incidence 23%) | 38 |
| Pain, right lower quadrant (general incidence 9%) | 13 |
| Tenderness, right lower quadrant (general incidence 19%) | 23 |
| Appendicitis, operation (general incidence 17%) | 24 |
| Appendicitis, "pus" (general incidence 16%) | 10 |

by vertigo. These patients often exhibit other stigmas of physical, nervous or emotional instability.

The local symptoms are referable to the right lower quadrant. Spontaneous pain in this region, which occurs in 9 per cent of all patients, is observed in 13 per cent of cases of low cecum. Tenderness in the right lower quadrant is also present more often (23 per cent) than in the general series (19 per cent). When cecal stasis is associated with low cecum, the figures increase to 21 per cent and 28 per cent, respectively. It is undoubtedly for this reason that patients with low cecum constitute the most frequently appendectomized group of colon anomalies (24 per cent vs. 17 per cent, general incidence). Appendix removal is obviously unwarranted in most cases because: (1) There is nothing in the history of low cecum on which a diagnosis of appendicitis can be properly based, and (2) the observations at operation show the smallest proportion of "pus" cases of any group of colon anomalies that we have studied; namely, 10 per cent as against a general incidence of 16 per cent and an incidence in high cecum of 36 per cent.

*Explanation of Symptoms.*—In our original article [32] on low cecum, no explanation was offered for the symptoms encountered. Although it can hardly be claimed that the problem of mechanism has been solved, it is felt that progress has been made in the intervening six years. According to our present conception, the explanation is somewhat complicated and probably embraces the following considerations:

1. The local symptoms are presumably caused by cecal or proximal colon stasis.[33] These conditions are from one and a half to three times more common in low than in normal or high cecum. The pain and tenderness may therefore be readily explained by increased intracecal tension (local spasm).

2. To account for the reflex toxic symptoms, two distinct hypotheses are conceivable. According to the first, the cause resides in the cecum, cecal stasis with absorption of a toxin being the responsible factor. The available evidence is against the acceptance of any such hypothesis. Not only has no toxin been identified, but actual analysis of cases has shown that it is only in low ceca that cecal stasis is associated with increased frequency of headache and vomiting. Cecal stasis in normal or high ceca does not act so. Therefore the symptoms cannot be due to stasis as such, because this should be equally operative in all locations of the cecum.

According to the second hypothesis, the cause of the symptoms resides in the duodenum, where transient stasis is produced, no gross obstruction taking place. The transient retentions are assumed to result from the intermittent drag of the low cecum, the pressure being mediated through any of the structures that cross the second or third portion of the duodenum. These structures are the transverse mesocolon, crossing the second portion, and the right and middle colic artery, the superior mesenteric artery, and the root of the mesentery of the small intestine crossing the third portion. According to this view, the actual occurrence of symptoms would be favored by such features as the erect posture, stasis in the cecum, mesenterialization (hypofixation) of the ascending colon with increased mobility of the cecum, and the presence of duodenal bands. The latter adhesions would, by fixing the duodenum, tend to "step up" the effect of colonic dragging so that subminimal stimuli might become effective. The possible rôle of colonic hyperfixation has not yet been adequately appraised but is now being studied.

This theory receives perhaps its chief support from the publications of Bloodgood,[34] Kellogg, Quain,[35] Carslaw,[36] McConnell,[37] Nesbitt [38] and Duval, who have observed the rôle played by "prolapsed ceca," "giant ceca," and "right coloptosis" in the production of gross duodenal obstruction. Bloodgood, for example, actually resected the right colon in eleven cases of chronic dilatation of the duodenum and found these patients well, up to fifteen years later. Other surgeons have performed colopexy, with relief in similar obstructive cases. As already mentioned, in none of our patients were the symptoms so pronounced as to warrant surgical intervention.

*Treatment.*—The medical management of low cecum consists in treating the asthenic habitus, controlling the neurosis, fattening the patient, and relieving the cecal stasis, which may be accomplished by treating the distal constipation when present, thus clearing the track ahead.

Surgical treatment may be considered in those rare cases which, after careful study and prolonged and conscientious conservative treatment, show no evidence of improvement, though the patients demand that something be done for their relief. Under such circumstances, colofixation may be attempted.

## SUMMARY

1. Statistical data resulting from eight years' combined clinical and roentgen study are presented for the following anomalies: (*a*) transduodenal bands, (*b*) redundant colon, (*c*) high cecum, and (*d*) low cecum.

2. The chief clinical aspects of transduodenal bands are their occurrence in asthenic women, their association with "duodenal migraine," and their mimicry of duodenal ulcer and gallbladder disease.

3. The chief clinical aspects of redundant colon are its occurrence in all builds and both sexes, its association with marked constipation and, less strikingly, with pain and gas.

4. The chief clinical aspects of high cecum are its occurrence in eupeptic sthenic males, and the ectopic position and increased tendency to inflammation of the appendix.

5. The chief clinical aspects of low cecum are its occurrence in asthenic women and its association with headaches and vomiting, and discomfort in the right lower quadrant.

6. An explanation is offered for the mechanism of the production of the toxic or reflex symptoms in low cecum.

7. The general significance of digestive anomalies is summarized.

145 West Eighty-Sixth Street.

32. Kantor, J. L.: A Clinical Study of Some Common Anatomical Abnormalities of the Colon: II. The Low Cecum, Am. J. Roentgenol. **14:** 207-215 (Sept.) 1925.

33. Kantor, J. L.; Schechter, Samuel; and Marks, J. A.: Colon Studies: VI. Cecal Stasis: Its Clinical Significance and Relation to Proximal Colon Stasis, Am. J. Roentgenol. **24:** 1-20 (July) 1930.

34. Bloodgood, J. C.: Chronic Dilatation of the Duodenum, Internat. S. Digest **1:** 259-270, 1926.

35. Quain, E. P.: Chronic Duodenal Obstruction: Etiology, Symptoms and Treatment, New York M. J. **116:** 651-654 (Dec. 6) 1922.

36. Carslaw, R. B.: Right Sided Visceroptosis, Brit. J. Surg. **15:** 545-604 (April) 1928.

37. McConnell, A. A., and Hardman, T. G.: Abnormalities of Fixation of the Ascending Colon, Brit. M. J. **10:** 532-557 (April) 1923.

38. Nesbitt, G. E.: Partial Duodenal Obstruction, Irish J. M. Sc. **5:** 147-186 (April) 1924.

# GRIPPAL INFECTIONS

## POSTFEBRILE CARDIOVASCULAR DISTURBANCES, USUALLY UNRECOGNIZED: REPORT OF CASES *

CLARENCE L. ANDREWS, M.D.
ATLANTIC CITY, N. J.

Many patients come to Atlantic City to recuperate after grippal infections, and they offer an unusual opportunity for study of the postfebrile and convalescent stages of this interesting disease in various types of people.

There seems to be a feeling on the part of many physicians that "grip" is nothing more than a systemic cold and, because of the time honored relationship between acute colds and beginning respiratory disease, that the severity of an attack of grip is always dependent on the involvement of the bronchial tubes and the lungs, and all other complications have no further significance than that they do occur; if a patient escapes pneumonia or other complications of the chest, he is quite all right.

There is, to begin with, a marked variance of opinion concerning what an attack of grip may do, and unless the possibility of a general infection is suspected, complications other than those of the respiratory system will not be appreciated.

Are other organs besides the lungs apt to become involved in grippal infections or do the various systems of the body show changes following every acute illness, regardless of what it may be? That is, does the heart muscle become impaired during grip, whether recognized or not, or must one presume that the recuperative powers of the myocardium are so great following any infection that one cannot say that heart disease exists, until a greater disturbance has taken place than is usually manifested by cardiac weakness or impairment of function?

These are important questions as far as treatment is concerned and should be answered intelligently, if there is to be hope of doing more for incipient myocardial disease in the future than has been done in the past.

The clinical interpretation of physical observations in heart disease has likewise passed through many phases during recent years and may help to explain why many physicians do not consider that myocardial disturbances have occurred during such acute diseases as grip unless the heart shows outspoken evidences of structural changes.

One diagnostic dogma regarding the efficiency of the heart muscle has been replaced by another, only in turn to be superseded by a newer conception of what has happened or by a more concise means of interpreting clinical facts.

Prior to thirty or thirty-five years ago, only organic valvular lesions were accepted as indicating definite cardiac disease. Any heart not showing such defects was considered normal. Hypertrophy and dilatation were the results of incompetent valves and were rarely thought to be of primary origin.

Following the advent of the x-rays and of cellular pathology, a second group of heart diseases was added because cardiac enlargement could be demonstrated without the presence of valvular abnormality.

With the introduction of the electrocardiogram, a third group, which was not suspected before, came into being; namely, disturbances in heart muscle and nerve conduction, and evidences of coronary disease.

During the World War, a fourth group was encountered, which did not show any valvular abnormality, or enlargement on roentgen study or any disturbances detectable by the electrocardiogram. The patients in this group were physically unfit, nevertheless, and were as much of a cardiac riddle as any type had been in the past. Through lack of a better name, this condition was called cardiovascular asthenia, or the effort syndrome.

Several years ago, Christian added another group of incipient myocardial disease, with beginning hypertrophy without other evidences of heart abnormality. Christian felt that a heart that enlarged, from any cause whatever, was no longer normal and that, although enlargement was generally regarded as a physiologic step in normal compensation, it was, in reality, beginning myocardial retrogression.

It is my purpose to discuss another type of cardiac instability or weakness following grip, which apparently is not appreciated or generally recognized. These cases presented none of the usual evidences of cardiac disease; that is, they showed no leaky valves, no increase in the size of the heart under roentgen study, and no changes in the electrocardiogram; they were not of the effort syndrome type, and they were not what Christian referred to as early hypertrophy.

Moreover, the patients did not give histories of previous hypertension or hypotension and were not beyond 50, when myocardial changes incident to age are expected to begin. In other words, they were selected from individuals who were physically fit, prior to their attack of grip.

They all showed a marked weakness of the cardiovascular system following exercise and were physically incapacitated until this disturbance was corrected. Hence there is ample clinical evidence to make one believe that these conditions if allowed to go too long become important etiologic factors in heart muscle weakness, if they do not develop into definite myocardial disease.

There is a tremendous difference between grip and the old fashioned systemic cold. If this fact were better appreciated, many of the circulatory tragedies that come into our offices might be prevented. Moreover, there seems to be no relationship between the duration of an attack of grip and the degree of myocardial weakness that follows. In fact, some patients who are not conspicuously ill have the most prolonged convalescence, or experience the greatest difficulty in recovering. Those who have pneumonia or severe bronchitis seem to react best or recover soonest.

Because of the nondramatic symptomatology of these apparently trivial illnesses, many physicians ascribe the weakness and nervous upheaval of the patients to other causes, such as added expenses, increased worries and the desire to get back to business, all of which, of course, means that the patient is not properly examined.

Is the thought too far afield to suggest that there is considerable clinical evidence to make one feel that the virus of grip, or whatever the organism may be, attaches itself to the tissues of the body in some unknown manner, where it may inflict damage to the myocardium by toxic absorption over a long period of time? Such a possibility would help to explain the marked circulatory weakness found in patients presenting the nonsevere forms of grip who have previously been all right. If this attachment does not occur, how

* Read before the Section on Practice of Medicine at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

can one explain the profound physical incapacity of these patients for so many weeks and months?

They all present practically the same type of history and date their weakness and loss of "pep" from their attack of grip several weeks or months before. Hence there is no illness (except possibly rheumatic fever or acute endocarditis) in which the physician should make so certain that the patient is not harboring a focus of infection that might enter the blood stream and damage the heart muscle, as in grip.

I wish to make an earnest plea for more serious consideration and thought being given these milder forms of grip during the convalescent stage. One sees individuals who have not felt well since their attack of grip, as long ago as ten years; yet many emphasize the fact that they were not critically ill. They probably got up too soon, or long before the processes of repair had taken place. Today, their chief abnormality is myocardial weakness. Hence one must presume that the milder forms that are now seen, if neglected, may show the same type of clinical symptoms in ten years.

One of the worse habits in clinical procedure is to allow certain diagnostic dogmas to become so firmly fixed in mind that nothing else can be seen. The feeling that most heart defects are dependent on valvular disease, that myocardial inefficiency is in proportion to the enlargement of the heart, and that the pulse rate is a true index of heart muscle tone has done more to cloud the true significance of early myocardial changes following acute infections than anything else.

Unfortunately there are no detectable means of accurately measuring myocardial disease. The muscle may be severely damaged and yet not show any specific evidence of what has occurred. This is best shown by referring to the myocardial changes during pneumonia. What is it that so weakens the pneumonic heart? No one knows, unless it is a toxic condition. Nothing is found that enables the pathologist to say "This is a pneumonic heart." So it is with grip. The heart muscle is markedly weakened, but nothing specific is seen.

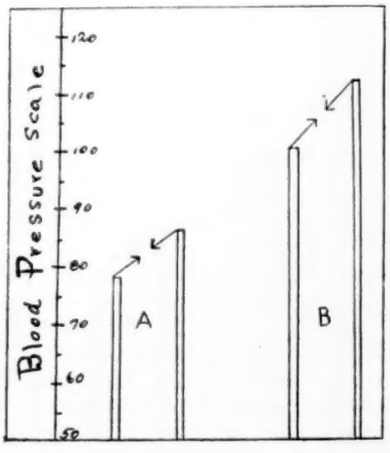



Fig. 1.—The average type of blood pressure before treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure poorly supported, indicating lack of muscle tone; *B*, systolic pressure like pulsus alternans, weak muscle, poor tone.

There is too great a tendency on the part of many to get away from the fundamentals of diagnosis that characterized the skill of the clinicians of a few decades ago. They did not practice short cuts to diagnosis but sought what they found. Today we have canned diagnosis as well as canned soup. If the can is empty there is no soup.

All physicians have patients with loud cardiac murmurs who live to a ripe old age; others with myocardial degeneration who show little evidence of muscle change, and still others with normal pulse rates, who present little suggesting cardiac injury but who later prove to have been severely hit. What one sees or hears alone, therefore, may not reveal the true status of heart muscle efficiency or explain all about cardiac disease. Muscle weakness is the most common of heart defects, and valvular leaks the most rare.

Although one may not feel that all heart muscle change is myocarditis, there is, nevertheless, no organ of the body more in physiologic sympathy with toxic absorption and bacterial invasion than the heart. The fact that the myocardium may ward off serious bacterial injury and may recover from every toxic strain, if given a fair chance, does not prove that the muscle has not been involved or should not be most carefully guarded for weeks and months after the febrile stage has subsided.

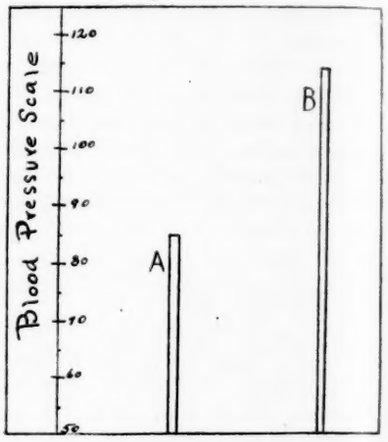



Fig. 2.—The average type of blood pressure after treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure, better supported or better tone; *B*, systolic pressure, better supported or better tone.

### REPORT OF CASES

A typical case is taken from each of the three principal groups:

1. A patient who was acutely ill for four or five days and got up without return of fever.

2. A patient who was acutely ill for three or four days, got up, and the fever returned. He was in bed three or four days a second time.

3. A patient who was acutely ill for five or six days, got up, returned to work and forced herself along for two months, when her condition was diagnosed as nervous breakdown and she was sent home; as she still did not improve, she came to the seashore.

CASE 1.—A. B., a white man, aged 38, the office manager of a manufacturing concern, complained of great physical weakness following the slightest effort and of loss of pep. The family history was irrelevant. He had always considered himself physically fit. He had played golf and had gone on long trips in the mountains, without fatigue. The present illness began rather suddenly, four weeks before, with aching pains and chilly and cold sensations, followed by perspiration. The temperature was 103 F., the pulse 76, and respiration 17. There was no cough or any upset of the gastro-intestinal tract. After the patient had been in bed four days, with temperature ranging from 101 to 103 F., he perspired profusely and the temperature became normal. He got up the following day and came to the seashore. He kept out in the open, walked, went to shows and window shopped but did not improve.

On physical examination the patient appeared well nourished and did not look ill; the face and skin showed good color, but the whole superficial circulation was dilated and of poor vasomotor tone. The chief interest centered about the heart, which was not enlarged; the sounds were sluggish and distant; the pulse was 70 and was regular in rate and rhythm. The blood pressure was 115 systolic and 90 diastolic but was poorly supported, as in pulsus alternans. After hopping on one foot thirty times, the patient became very tired and short of breath. The blood pressure was 120 systolic and 85 diastolic, which is not a normal response.

Treatment consisted of limiting the patient's activities to the lobbies and porches of the hotel; rest in the afternoon, and tonic doses of digitalis and nux vomica to tone up the heart muscle. One week later, the blood pressure was about the same but was better supported, and the heart tone was much improved. After another week the patient felt fine.

CASE 2.—R. S., a white youth, aged 18, a college student, a member of the tennis and ball teams complained of a mean, tired feeling and inability to do anything without becoming short of breath. The family history was unimportant. An appendectomy had been done a year previously with good results. The patient had always been active at college in tennis and ball games; he took the physical examination on entrance to college and was pronounced quite fit.

Five weeks before there had been a sudden onset of aching all over. At that time the temperature was 103.2 F., the pulse rate 78 and the respiratory rate 20; there was no cough or intestinal upset. After the patient had remained in bed for three days, with temperature ranging from 100 to 103, he perspired freely and the temperature became normal. After he had been up for twenty-four hours, the fever returned, and he was in bed three more days. He went home for a week to get away from work but did not gain. He still felt mean and weak, came to the seashore and was out every day but did not improve.

The patient appeared well nourished. He did not look very ill. The skin was warm, with superficial circulation dilated and of poor vasomotor tone. The heart was not enlarged, but the sounds were distant and the long pause was shortened; there were no murmurs; the pulse was 76, and regular in rate and rhythm. The blood pressure, which was 105 systolic and 78 diastolic, was poorly supported. The patient hopped on one foot thirty-five times and became quite tired and short of breath. The blood pressure was then 115 systolic and 80 diastolic.

After treatment consisting of restricted exercise, tonic doses of digitalis and nux vomica for one week, the patient felt much better. The blood pressure was 110 systolic and 80 diastolic and of better tone and support. Two weeks later the patient felt fine and went back to school.

CASE 3.—A. T., a white woman, aged 38, a school teacher, complained of great weakness and inability to walk to and from school as she had done previously. The family history was irrelevant.

She had always been well and strong and had walked a mile to and from school each day for years.

The present illness began four months before with acute grip; the patient had ached all over and had a dry nonproductive cough. The temperature was 103.5 F., the pulse rate 80 and the respiratory rate 19. She had been in bed six days, with temperature from 100 to 102.5, she perspired freely and the temperature became normal. One day later she went back to school but had to force herself along after two months. The school physician said that she had a nervous breakdown and sent her home. She was at home for several weeks but did not gain and came to the seashore. She was out in the open all the time but had no strength and did not improve.

On physical examination the patient appeared nervous and weak, but she did not look very ill though she said that she had no strength and could not walk much. The chief interest was the heart and circulation. The heart was not enlarged, but the sounds were faint and "tic tac" in quality; the pulse was 82, regular in rate and rhythm. The blood pressure was 110 systolic and 90 diastolic and very poorly supported.

The patient danced about the office for two minutes and had to stop. The blood pressure did not rise but remained about the same; the pulse rate was 112. She felt very tired after ten more minutes.

Under treatment consisting of rest in bed for three days, then about the hotel and porch, and tonic doses of digitalis and nux vomica three times a day, the patient improved rapidly. Two weeks later she went home, but not to work till two more weeks. When seen one year later, she was quite all right. At that time the blood pressure was 120 systolic and 80 diastolic.

## CONCLUSIONS

1. Grip is regarded by many physicians as a systemic cold, and patients are allowed to get up much too soon.

2. Unless outspoken murmurs are present, heart enlargement is demonstrable, edema persists, or changes in the electrocardiogram are found, the heart is pronounced normal.

3. Myocardial weakness is the most common of heart defects and organic leaks of the valves are the most rare.

4. Even the mild forms of grip offer potential possibilities of myocardial disease and show evidences of lingering infection in the body tissues.

5. The most effective treatment that I have found consists of rest and tonic doses of digitalis and nux vomica (not with the idea of digitalization) to tone up the heart muscle and vasomotor system.

1616 Pacific Avenue.

## ABSTRACT OF DISCUSSION

DR. W. S. THAYER, Baltimore: If one considers the results of recent investigations, one must assume that, whatever the infectious agent may be, the virus is probably filtrable. What the organisms are may be unknown, but certain things are known about their clinical effects. The immediate symptoms of the infection last, for instance, apparently a short time; the primary symptoms of influenza or of a bad cold are of but a few days' duration—the "three days' fever," as influenza was called at the outset in the American Expeditionary Forces. After this the patient often recovers with little appreciable after-effect. On the other hand commonly, after several days, when he thinks himself well, he breaks down again, is febrile and manifests the symptoms of secondary infections of all sorts, which in the graver epidemics are usually due to infections with a malignant streptococcus. In other words, a bad cold, or whatever one calls it, or an attack of "grip," seems to diminish the resistance of the individual in a remarkable way, and this diminution of resistance is shown in grave secondary infections, commonly in the sinuses or lungs, but in a surprising number of instances, in the heart. When one looks back over a large number of instances of subacute streptococcal endocarditis, it is rather remarkable how often those symptoms are traced to an ordinary infection of the upper respiratory tract. But more than that, we are perfectly familiar, as Dr. Andrews has set forth clearly, with the rather striking debility, physical and nervous, which sometimes follows apparently mild infections of the upper respiratory tract, and often the more severe ones. To come more specifically to the heart, one of the commonest experiences in the life of a physician is to observe the following course of events in one of his patients with old rheumatic heart disease, or in an individual with a serious myocardial change, who is going along on an even keel, and has been going along on an even keel for a long time: The patient has an infection of the upper respiratory tract which may not seem to be grave, and compensation is immediately upset. One is apt to fancy that the bronchitis and pulmonary congestion are responsible, but the failure of compensation that one sees after relatively mild infections of the upper respiratory tract is often striking. What the average results of a bad cold or of an attack of grip are is unknown because, ordinarily, little attention is paid to them. I am reminded in this connection of the significant observations made in convalescent camp 2 during the war, by Dr. Bridgeman, who showed, among other things, that in a considerable number of cases the average length of time that it took for a boy of fighting age in good condition to get back into class A after an ordinary attack of tonsillitis, with or without sinusitis, was about a month. How many people take three weeks' vacation after an attack of tonsillitis? Yet it is quite clear that from an economic standpoint, the average man should do so.

DR. THOMAS MCCRAE, Philadelphia: During the past winter, what was called influenza was supposed to be prevalent in many parts of the country. For example, in Philadelphia, morbidity returns showed a large number of cases labeled influenza and a considerable number of deaths were considered the result of influenza. In a fairly large medical service during the winter I did not see a case which I felt could be called influenza. An inquiry came from the health department as to why we were not reporting our cases of influenza, to which the answer was sent back that we did not have any such cases. A great many cases were sent in with that diagnosis, but on

study a majority proved to be streptococcic infections and a certain number pneumococcic infections of the upper respiratory tract. How much of secondary infection is due to the streptococcus I do not think any of us know as yet. My suggestion would be that the majority of these cases are instances of infection of the upper respiratory tract, some caused by the streptococcus, some by the pneumococcus, and some possibly by both. What happened in these patients? Had they definitely cardiac damage? Were they patients who possibly had had a chronic focus of infection and in whom the acute infection was enough to make material difference for the time being; or how much may have been due to vasomotor disturbance? My feeling would be that the condition is probably caused by a combination of these two factors, with vasomotor disturbance perhaps playing a considerable part. I think we would all agree with Dr. Thayer that the lesson to remember is that acute infections of the upper respiratory tract may be a comparatively serious matter, and that a period of rest afterward is essential. We know how difficult it sometimes is to secure that rest, but we ought to be certain that these patients are back to a reasonable normal before we permit them to get out of bed.

DR. L. G. ROWNTREE, Rochester, Minn.: There are various groups at work in this country investigating the nature of the common cold. It seems to me that this is one of the points of attack on this problem, because it is difficult to say what is a common cold and what is influenza. I wish to emphasize the importance of influenza and of the common cold in relation to disease in general. This might best be emphasized by specific instances. A father said to me, "Why is it that I who have had gallstones, have an attack of jaundice, and my son, who has nephritis, has an attack of interstitial nephritis, after colds?" Colds are responsible for exacerbation of preexisting disease, whenever they are found in the body very frequently. On the other hand, they may initiate disease just as frequently. When the disease does not localize in an individual organ it may attack the body as a whole—and I am inclined to feel that the illness of Dr. Andrews' patients was of the body and the mind, in many instances, as well as of the heart. The question arises as to what should be considered an indication of trouble. Dr. Thayer's suggestion as to prolonged rest is an excellent one, but I do not believe that it will be followed generally. If, however, one recognizes exhaustion following cold as of equal importance with organic disease and then applies Dr. Thayer's rest remedy, I believe that it would save an infinite number of patients from an infinite amount of illness. This exhaustion may go on, literally for years in many cases, and it may incapacitate the patient sometimes for a year, sometimes for life. Hence it is a serious problem. I should like to ask Dr. Andrews one question. These patients have gone to the seashore. Is not the seashore environment an important factor in the recoveries reported, as well as the rest, the massage and the drugs employed?

DR. MOSES SALZER, Cincinnati: I should like to ask the author what he means by tonic doses of digitalis.

DR. F. R. TAYLOR, High Point, N. C.: It has been stated that some of these cases of so-called influenza have been found to be streptococcic or pneumococcic infections, and I am eager to know how that determination is arrived at. I have always assumed that one might find streptococci or pneumococci in the upper respiratory tract in any one. I should like to know how to determine whether the infection is due to these organisms which one finds or to infectious agents which Dr. Thayer has spoken of, which one cannot find.

DR. F. C. ATWOOD, New Haven, Conn.: I should like to ask Dr. Andrews whether he has had any experience in the use of a convalescent serum in the treatment of influenza.

DR. CLARENCE L. ANDREWS, Atlantic City, N. J.: My cases were based on a group of patients whom I saw never earlier than two weeks following their illness. They were sent to the seashore because they did not gain at home. I tried to check the etiologic factors, but the data varied so much that they were discarded. If you recall what I said, none of the patients showed any of the usual evidences of cardiac disease or any etiologic factors except a history of so-called grip. I emphasized grip rather than influenza because of the uncertainty of what causes it. I merely used the term that every one else uses. I do not know myself what causes it; and so far as I know, no one else does. My idea in presenting the paper was not so much to point out the cause of grip as to emphasize the cardiac disturbances which follow these mild types. The same group of physicians would probably regard them as unimportant even if streptococcic in character. What I wish every one to do is to watch the cardiovascular system. I do not know whether the condition is caused by myocardial or vasomotor disturbances, by a depression of the suprarenal balance or by a combination of all three. I believe that there is a big nervous "let down" or, as Dr. McCrae said, a combination of everything. Answering Dr. Salzer regarding digitalis, I do not use a specific dose but just enough to tone up the muscle. All know what a poorly toned muscle is like; it cannot hold itself. I rarely give more than 10 drops and never with the idea of digitalization. Dr. Rowntree mentioned the great importance of finding the cause; but, as previously stated, I saw these cases too late for that. All these patients do well at the seashore, if they do not overexert themselves. The question of Dr. Taylor is really the question of Dr. McCrae; that is, how to determine whether the infecting organisms are streptococci or pneumococci. Of course, my paper did not deal with the causes. Answering Dr. Atwood, I have had no experience in the use of a convalescent serum in the treatment of influenza.

---

# EXPERIMENTAL SHOCK

## A STUDY OF ITS PRODUCTION AND TREATMENT *

ALFRED BLALOCK, M.D.
J. W. BEARD, M.D.
AND
G. S. JOHNSON, M.D.
NASHVILLE, TENN.

A great deal of confusion has arisen from the use of the term "shock." Conditions that are probably little related to one another are classified together under this general heading. Several recent workers have suggested other terms in an endeavor to lessen the misunderstanding. Until the factors that are responsible for the decline in the volume of circulating blood and the drop in the blood pressure are better understood, it would probably be advisable to designate the initiating agent as, for example, shock following trauma to an extremity, shock following burns, or shock following injury to the central nervous system.

Shock resulting from injury may be roughly divided into two types: (1) primary shock, in which a low blood pressure follows immediately, and (2) secondary shock, in which at least an hour usually elapses between the time of injury and the development of a low blood pressure. It is the latter type with which surgeons are most frequently confronted, and this paper is limited to a consideration of it. Many theories have been offered in an effort to explain the mechanism of the production of secondary shock. These include the theories of (1) vasomotor exhaustion, (2) inhibition, (3) fat embolism, (4) acidosis, (5) acapnia, (6) suprarenal hyperactivity and hypo-activity, and (7) toxemia. Probably the theory with the largest number of supporters at the present time is the last one mentioned, which maintains that the decrease in the blood volume and the decline in the blood pressure following injury to large areas of tissue are due to the absorption of toxins into the general circulation. These toxic products are thought to be similar to histamine in their actions.

* From the Department of Surgery of Vanderbilt University School of Medicine.

* Read before the Section on Surgery, General and Abdominal, at the Eight-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

The experiments that probably gave the strongest support to the toxic theory of shock were those performed by Cannon and Bayliss,[1] in which one of the posterior extremities of cats was traumatized by striking. An hour or more following the injury, the blood pressure declined to a low level. Amputation of the two posterior extremities by symmetrical cuts made across the upper thighs and determination of the difference in weight indicated that there was not a sufficient loss of fluid from the blood stream into the injured area to cause the decline in the blood pressure. Section of the upper lumbar cord in some experiments showed that the fall in blood pressure was not due to a general effect of the trauma on the circulation brought about by nervous impulses. Since the femur was not broken, fatty embolism seemed unlikely. It was believed that the continued fall in blood pressure following the trauma was due to the absorption of depressant substances.

### MECHANISM OF PRODUCTION

The results of experiments that were performed in studying shock by other methods suggested that the experiments just quoted might have been wrongly interpreted. In the first type of experiments, performed by Blalock and Bradburn,[2] the oxygen content of the blood from various veins of the body was determined after a low blood pressure had been produced by a variety of means. The oxygen content of the blood from the femoral vein of a traumatized extremity was much higher than was that of the opposite nontraumatized extremity. The oxygen content of blood from the portal vein was much higher after a low blood pressure had been produced by trauma to the intestines than after a proportionate decline in blood pressure had been obtained by other methods. The alterations that were produced by trauma and by the injection of histamine were quite different. In the second type of experiments, the cardiac output and blood pressure were determined before, during and after the production of a low blood pressure by (1) hemorrhage, (2) trauma to an extremity, (3) trauma to the intestines, (4) burns and (5) the subcutaneous injection of histamine. In the experiments on hemorrhage and on the various types of injury there was a rather large decrease in the output of the heart before any significant alteration in the blood pressure occurred. When histamine was injected, the alterations appeared in the reverse order, there being first a decrease in the blood pressure followed later by a decline in the output of the heart. In these and in all experiments to be reported in this paper, the animals were profoundly anesthetized, usually by soluble barbital, and they did not give any evidence of pain during the experiments. At the completion of the experiments they were killed.

In view of the results that have just been reported, experiments were then performed on dogs by the use of the method of Cannon and Bayliss. Eight such experiments were performed. The trauma was instituted by striking one of the posterior extremities. It was evident that the loss of fluid was not limited solely to the area directly traumatized, as there was swelling of the loose tissues in the groin and flank. After intervals of time following the trauma, varying from one to six and one-half hours, there was a decline in the blood pressure to a low level. The method of determining the amount of fluid that was lost into the traumatized area was different from that described by Cannon and Bayliss in that the amputations were performed at higher levels. The method briefly was as follows: A midline abdominal incision was made, the symphysis pubis was divided with a saw, the bladder and rectum were removed, the abdominal aorta and vena cava were doubly ligated and divided, a high transverse abdominal incision was made extending across the vertebral column, the posterior portion of the body was divided into two parts by a longitudinal section of the vertebral column, the tail was discarded, and the weights of the two posterior portions were determined. The average difference in weight of the traumatized and nontraumatized parts equaled 5.2 per cent of the body weight. In other experiments in which the tolerance to graded hemorrhages was determined, the results indicated that the loss of blood into the injured extremities had been sufficient to account for the decline in the blood pressure.

In an effort to eliminate the possibility of the absorption of toxic products from the traumatized extremity, experiments of a slightly different nature were performed. The femoral artery was isolated in the groin, the head of the femur was removed, and a tourniquet was placed tightly around the thigh, constricting all structures except the artery, which was left outside the tourniquet. The extremity was then traumatized distal to the constriction. The impression was gained that less trauma was necessary for the production of a low blood pressure in these experiments than in those in which no tourniquet was applied. The difference in the weights of the two extremities showed that there was sufficient hemorrhage into the injured area to cause the decline in the blood pressure.

Other types of injuries were then studied. These included (1) mild trauma to an extremity, (2) trauma to the intestines and (3) burns. Following mild trauma to an extremity, there is an accumulation of fluid in the injured tissues. When the intestines are passed continuously between the fingers, a copious weeping of fluid from the peritoneal surfaces results. Dogs do not blister when burned, but a great deal of fluid escapes into the subcutaneous tissues beneath the burned skin. The composition of the fluid that escaped from the blood stream, after these three types of injury, was determined. It was found that the fluid had almost exactly the same composition as the plasma of the blood. It is especially significant that the protein content of the two was practically identical. This is important because it is the protein of the plasma that is largely responsible for maintaining the osmotic pressure in the blood stream. Without it the filtration pressure in the capillaries would cause the loss of most of the fluid from the blood stream and no fluid would be attracted to it.

The experiments on mild trauma to an extremity were performed because those on severe trauma were probably not of sufficient duration to take into account the possible late action of protein decomposition products that are slow in exerting their effects. One cannot be certain that these experiments were of sufficient duration (average, thirty-two hours and sixteen minutes), but the length was limited by the fact that the animals were deeply anesthetized and would have died eventually from the anesthetic alone. After the blood pressure had declined to a low level, the difference in weight of the two posterior extremities was

1. Cannon, W. B., and Bayliss, W. M.: Note on Muscle Injury in Relation to Shock, Nat. Health Insur., Med. Research Com., Spec. Rep. Ser. no. **26**: 19-23 (March) 1919.

2. Blalock, Alfred; and Bradburn, Hubert: Distribution of the Blood in Shock: The Oxygen Content of the Venous Blood from Different Localities in Shock Produced by Hemorrhage, by Histamine and by Trauma, Arch. Surg. **20**: 26-38 (Jan.) 1930.

determined by the same method as was used in the experiments on severe trauma. The average difference amounted to 3.66 per cent of the body weight. As has been stated, the fluid that escaped into the injured part had in the main the same composition as the blood plasma. Experiments were then performed on the graded removal of blood plasma, in which the loss that produced death was determined. The results indicated that the loss of plasma into the injured area following mild trauma to an extremity had been responsible for the decline in blood pressure.

In the experiments on trauma to the intestines, the amount of fluid that escaped through the exposed and injured peritoneal surfaces as well as the excess of blood that accumulated in the traumatized intestines was roughly determined. Comparison of these results with those obtained in plasmapheresis experiments of approximately the same duration indicated that the loss of plasma from the circulating blood stream had been responsible for the decline in the blood pressure. We do not mean to imply that the temporary decline in blood pressure that is frequently encountered in abdominal operations is usually due to the loss of fluid through the exposed peritoneum. This condition is probably more closely related to primary shock, in which there is a decrease in the circulating blood volume due to the passage of blood into large areas of dilated capillaries.

In animals that were very deeply anesthetized by soluble barbital, the amount of plasma lost into a burned area that was restricted to one side of the body was determined by dividing the body into symmetrical halves and weighing them. Comparison of the results of these experiments with those obtained in studying the effects of plasmapheresis indicated that the loss of plasma had been sufficient to account for the decline in blood pressure. Most of these experiments were less than twenty-four hours in duration. In view of the results of these experiments, it seems possible that the early beneficial effects following the use of tannic acid and epinephrine in treating burns may be due to the lessening of the loss of fluid from the weeping surface rather than to the prevention of the absorption of toxins. It seems likely that deaths occuring within twenty-four hours following a burn are due in the main to the loss of plasma through the injured capillaries. In burns associated with longer survival periods, toxins probably exert their effects.

Experiments by Harris and Blalock[3] showed that there is an increase in the water content of the tissues at the site of injury and a decrease elsewhere. After trauma to an extremity there is an increase in the water content of muscle in the injured area and there is a decrease in the water content of skeletal muscle in other parts of the body. There is an increase in the water content of the subcutaneous tissues of a burned area, and the subcutaneous tissues elsewhere lose water.

The observations recorded thus far indicate that the local loss of fluid at the site of injury is the most important factor in producing the decline in blood volume and blood pressure in shock. Evidence for the action of toxins was not found in these experiments. Following severe trauma, the fluid that was lost consisted in the main of whole blood. When the injury was less severe, the fluid that escaped through the damaged capillaries had approximately the same composition as the plasma of the blood.

3. Harris, P. N., and Blalock, Alfred: Experimental Shock: X. Observations on the Water Content of the Tissues of the Body After Trauma and After Hemorrhage, Arch. Surg. **22**: 638-648 (April) 1931.

## TREATMENT

There are two methods by which the low blood pressure in shock may be elevated: the giving of vasoconstrictor drugs and the addition of fluids to the circulating blood stream.

*The Giving of Vasoconstrictor Drugs.*—If we limit our consideration to the shock that develops following trauma and remember that the blood pressure is low because there is a decrease in the blood volume, treatment that is not directed toward increasing the blood volume does not seem correct. The blood supply to organs is already lessened because of the decrease in the circulating volume of blood and the vasoconstriction that is usually present, and further vasoconstriction that follows the giving of drugs decreases still more the total blood flow to organs, even though the blood pressure is raised. The increase in blood pressure that follows the injection of a vasoconstrictor drug is usually sustained for only a short time. It is well to remember that the repeated injections of large amounts of epinephrine will produce shock in previously normal dogs.

*The Addition of Fluids to the Circulating Blood Stream.*—Since there is a diminution in the volume of blood in the circulation in shock, treatment should be directed toward increasing this amount. For this purpose, blood and so-called substitutes for blood have been employed. The results following the use of most of the substitutes have not been very encouraging. Theoretically, a solution of acacia should most nearly fulfil the conditions, but there are some objections to its use.

The fluid that has probably been used more frequently than any other in treating shock is physiologic solution of sodium chloride. It has been known for a long time that salt solutions as well as other crystalloids do not remain in the blood stream even of normal dogs very long after their injection. This information has explained, in part at least, the fact that favorable responses in the blood pressure frequently do not follow the intravenous injection of salt solution. We have the impression that at times in patients with low blood pressures the condition is actually worse a short time following the introduction of the fluid than it was before. Studies were carried out in an attempt to obtain more information on the cause of failures. The effects of various other solutions were studied but, because of lack of space, only isotonic saline solution will be considered here.

The type of injury that was chosen for these experiments was that of trauma to the intestines. When the intestines are continuously passed between the fingers and no fluid is introduced intravenously, since the fluid that is lost through the exposed peritoneum has the same composition as the plasma of the blood stream, there is practically no alteration in the amount of protein in a unit volume of plasma. However, there is a large decrease in the total amount of plasma in the blood stream and hence a great diminution in the entire amount of protein. When isotonic salt solution is injected continuously intravenously while the intestines are being traumatized, there is a decrease in the total amount of plasma and at the same time a decrease in the percentage of protein in a unit volume of plasma. In other words, the injected salt solution, as it escapes, takes protein with it, resulting in a dilution of the protein in the fluid that remains in the blood stream. This, of course, decreases the ability of the blood stream

to increase its volume, by attracting fluid to it because of the diminution in the osmotic pressure.

We were then interested in determining the effects in normal dogs, anesthetized by morphine, of the intravenous injection of large amounts of physiologic solution of sodium chloride. The fluid was injected continuously intravenously for four hours at the rate of 10 cc. per kilogram of body weight per hour. Studies were performed before, during and after the injection of the fluid. In the animals in which there was no decline in the blood pressure at any time during the experiments, there was a slight increase in the entire amount of plasma, a slight decrease in the percentage of protein and no alteration in the entire amount of protein in the blood stream. On the contrary, when at any time during the course of an experiment the blood pressure declined, owing to the anesthetic or unknown cause, a rapid loss of protein from the blood stream was found. Hence one sees in the presence of a low blood pressure that the capillaries allow the escape of protein even when there has been no gross injury to the vessels.

When whole blood or blood serum is injected intravenously in the presence of a low blood pressure resulting either from trauma or from an unknown cause, protein is lost through the capillary walls. But protein is being added to the circulation in the blood that is being injected, and this compensates at least partially for the amount that is being lost.

Vanderbilt University Hospital.

## ABSTRACT OF DISCUSSION

DR. JACOB MARKOWITZ, Washington, D. C.: Cannon and Bayliss are eminent names in physiology. As a teacher of physiology I have been teaching that surgical shock is the result of a toxin which is liberated in traumatized tissues. I was therefore surprised and pleased to hear that this conclusion of Cannon and Bayliss is erroneous. I say pleased because these experiments are much simpler, and, other things being equal, simple explanations are more apt to be true. It is a fact that the injection of histamine will induce a condition which is very similar to surgical shock, and it is a fact that there is present in the animal body a good deal of histamine. Any one who has worked with shock in animals soon realizes that histamine as such could not be responsible for surgical shock, for a simple reason. Herbivorous animals do not react to an intravenous injection of histamine by a fall in blood pressure, and herbivorous animals in general are notoriously prone to the development of shock. The tendency has been to look on the condition of shock in more or less of a diagnostic sense. No one would suppose that to call the patient collapsed would be making a diagnosis. There is no more reason, I suppose, to call "shock" a diagnosis. While every one who has written on the subject has urged that the word "shock" be abandoned for medical literature, it still persists. I should like to suggest instead of the word "shock" that one use the term "collapse with hypotension." It is true that these terms do not indicate all the features of shock, but in my opinion they are better than the word "shock." The number of papers on the subject of shock is legion. Many of them are profound and many contain nothing. It is my belief that this discussion of Dr. Blalock and his collaborators will stand the test of time.

DR. FREDERICK A. BOTHE, Philadelphia: Three observations whieh the authors made were of utmost importance: First, there was an increase in the fluid content of the injured area. The fluid, on analysis, was chemically the same as blood plasma. Second, the results obtained in experimental trauma indicated that the loss of plasma into the injured area was responsible for the decline in blood pressure. Third, if during an experiment the blood pressure declined because of the anesthetic or an unknown cause, a rapid loss of protein from the blood stream occurred. This showed an altered permeability of the capillaries in the presence of a low blood pressure, though there was no gross injury to the vessels. Adolph recently found an increase in the water content of the tissues as the result of low blood pressure in the absence of trauma. From these observations the question arises, Does the low blood pressure precede the escape of the plasma, or does some plasma escape before the blood pressure is altered? What part the sympathetic nervous system plays in the fall of the blood pressure is still unknown. The results obtained by operations on the sympathetic nervous system in the treatment of vascular diseases of the extremities has stimulated further study of the function of this system. Ferguson and North are at present conducting research work in the Department of Research Surgery of the University of Pennsylvania, which may help in the solution of this problem. Though their work is not completed, they observed that, if the splanchnic nerves alone are paralyzed, a momentary slight drop in blood pressure occurs, which is so rapidly compensated that it is practically negligible. If the splanchnic and the sympathetic nerves to the lower extremities are paralyzed there is a fall in the systolic pressure averaging about 12 mm. of mercury. If in addition the sympathetic nerves above the fifth thoracic nerve are paralyzed, the blood pressure falls proportionately to the number of sympathetic nerves paralyzed. These observations indicate that paralysis of the splanchnic nerves alone is not responsible for "splanchnic shock." In more profound cases blood transfusion is the best therapeutic agent to supply the constituents necessary to combat this reaction, as manifested by the physiologic changes.

DR. ALFRED BLALOCK, Nashville, Tenn.: The fact that not every decline in blood pressure is due to the loss of fluid through the walls of the capillaries should be emphasized. Surgeons note that the opening of the peritoneal cavity frequently causes a drop in the blood pressure. This condition probably is closely related to what is termed primary shock in which there is "bleeding" into the capillaries themselves, resulting in a diminution in the circulating volume of blood. In view of the results that were obtained in the experiments in which fluids were injected intravenously, the question arises as to how a patient who has a low blood pressure should be treated. I think in the absence of the ability to obtain a donor that solutions of sodium chloride or dextrose should be introduced but that the injection should be terminated if there is not an early favorable response in the blood pressure. Otherwise, it is believed that the continued introduction of fluid will result in a great diminution in the amount of protein in the blood stream and that the chances of recovery will be lessened. Further work should be directed toward finding something that will decrease the permeability of the capillaries. Unless such attempts are productive there will continue to be many patients in shock who are unsuccessfully treated.

---

**Undulant Fever in Children.**—. . . The surprising thing, however, is that the incidence of undulant fever among people drinking infected milk is comparatively low. As investigation proceeds, it is becoming apparent either that the bovine strain of Brucella melitensis is of relatively low pathogenicity for human beings, or that there are other factors of immunity responsible for the low incidence of the disease among those exposed. It has been repeatedly stated by those who have described undulant fever, fostered undoubtedly by those who have previously described Malta fever of caprine origin, that the disease is of rare occurrence in childhood and therefore of little importance in this age group. While it is true that the majority of cases which have been reported have occurred in adults, one is hardly justified, in the present state of knowledge, in accepting this conclusion. Children are not immune, and the disease has been observed during the febrile stage even in infancy. We should like to add three cases occurring in children to those already on record. We do not, of course, presume to draw any conclusions concerning undulant fever from so small a series. There is much that is still unknown concerning the relation of infectious abortion in cattle to undulant fever in man. It is not impossible that unrecognized infections in childhood may be one factor in accounting for the relatively high immunity to the disease in adults.—Anderson, E. D., and Pohl, J. F.: Undulant Fever in Children, *Am. J. Dis. Child.* **42**:1103 (Nov.) 1931.

# Clinical Notes, Suggestions, and New Instruments

## AGE INCIDENCE OF CARCINOMA OF THE CERVIX

TWO THOUSAND, ONE HUNDRED AND EIGHTY-ONE CONSECUTIVE CASES AT THE HOWARD A. KELLY HOSPITAL

EDWIN F. DAILY, M.D., BALTIMORE

A question frequently asked in recent years has been "Is carcinoma of the cervix occurring in younger women more often than it did a few decades ago?"

A careful tabulation of 2,181 consecutive cases of squamous cell carcinoma has been made (table 1). The cases have been grouped into yearly divisions from 1913 to 1931, and the percentage of occurrence for each ten years of life and the average age of occurrence for the entire group have been computed. The ages given are the ones at the time the diagnosis was made. The onset of the first symptoms was computed to be on the average 9.3 months earlier. The average age of onset then would be 47.39 years, and the age at the time of diagnosis 48.16 years. The youngest patient in this series was 22 years, the oldest 83 years, of age.

For comparison, Pozzi's statistics as published in his "Treatise on Gynecology," 1891, are used (table 2). In a series of 3,471 cases the average age of onset for his patients was 48.2 years. This is practically the same as in our cases. The average age incidence of cases for each ten years span of life is also practically the same in his series as in ours.

TABLE 1.—*Age Incidence of Squamous Cell Carcinoma of the Cervix at the Howard A. Kelly Hospital*

| | | | Age | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 20 to 30 | | 30 to 40 | | 40 to 50 | | 50 to 60 | | 60 to 70 | | 70 to 80 | | 80 to 90 | |
| Year | Number of Cases | Average Age per Cent | Number | Per Cent | Number | Per Cent | Number | Per Cent | Number | Per Cent | Number | Per Cent | Number | Per Cent | Number | Per Cent |
| Total | 2,181 | 48.16 | 73 | 3.34 | 404 | 18.5 | 718 | 32.9 | 620 | 28.5 | 310 | 14.3 | 53 | 2.44 | 4 | 0.18 |
| 1913 | 41 | 48.6 | 1 | 2.4 | 7 | 17.0 | 16 | 39.0 | 10 | 24.0 | 6 | 14.5 | 1 | 2.4 | 0 | 0.0 |
| 1914 | 115 | 50.2 | 1 | 0.87 | 15 | 13.0 | 34 | 29.5 | 46 | 39.8 | 17 | 14.8 | 2 | 0.74 | 0 | 0.0 |
| 1915 | 85 | 51.1 | 1 | 1.18 | 11 | 12.95 | 24 | 28.5 | 31 | 36.5 | 15 | 17.65 | 3 | 3.53 | 0 | 0.0 |
| 1916 | 103 | 47.5 | 3 | 2.9 | 28 | 27.2 | 28 | 27.2 | 27 | 26.2 | 13 | 12.6 | 4 | 3.88 | 0 | 0.0 |
| 1917 | 73 | 48.4 | 0 | 0.0 | 9 | 12.3 | 34 | 46.6 | 18 | 24.6 | 9 | 12.3 | 3 | 4.1 | 0 | 0.0 |
| 1918 | 104 | 49.6 | 3 | 2.89 | 17 | 16.35 | 36 | 34.4 | 25 | 24.0 | 19 | 18.3 | 4 | 3.85 | 0 | 0.0 |
| 1919 | 164 | 49.3 | 4 | 2.44 | 25 | 15.2 | 53 | 32.3 | 55 | 33.5 | 25 | 15.2 | 2 | 1.22 | 0 | 0.0 |
| 1920 | 158 | 47.9 | 4 | 2.53 | 32 | 20.3 | 52 | 32.9 | 43 | 27.2 | 25 | 15.8 | 2 | 1.27 | 0 | 0.0 |
| 1921 | 135 | 49.1 | 1 | 0.74 | 42 | 31.1 | 48 | 35.5 | 20 | 14.8 | 22 | 16.3 | 2 | 1.48 | 0 | 0.0 |
| 1922 | 108 | 48.9 | 2 | 1.85 | 16 | 14.8 | 37 | 34.2 | 38 | 35.2 | 11 | 10.2 | 4 | 3.7 | 0 | 0.0 |
| 1923 | 130 | 49.7 | 1 | 0.75 | 28 | 21.5 | 46 | 35.5 | 34 | 26.0 | 18 | 13.8 | 3 | 2.3 | 0 | 0.0 |
| 1924 | 97 | 46.1 | 6 | 6.2 | 18 | 18.5 | 27 | 27.8 | 29 | 29.9 | 12 | 12.4 | 5 | 5.1 | 0 | 0.0 |
| 1925 | 132 | 47.8 | 5 | 3.8 | 23 | 17.4 | 47 | 35.5 | 35 | 26.5 | 19 | 14.7 | 3 | 2.2 | 0 | 0.0 |
| 1926 | 115 | 47.9 | 7 | 6.1 | 18 | 15.6 | 40 | 34.7 | 28 | 24.3 | 20 | 17.4 | 1 | 0.87 | 1 | 0.87 |
| 1927 | 142 | 48.1 | 9 | 6.3 | 23 | 16.2 | 43 | 30.3 | 47 | 33.1 | 18 | 12.1 | 2 | 1.4 | 0 | 0.0 |
| 1928 | 130 | 49.3 | 4 | 3.8 | 19 | 14.6 | 45 | 34.6 | 36 | 27.7 | 24 | 18.5 | 2 | 1.5 | 0 | 0.0 |
| 1929 | 124 | 47.3 | 9 | 7.3 | 25 | 20.2 | 36 | 28.8 | 38 | 30.7 | 12 | 9.7 | 4 | 3.2 | 1 | 0.8 |
| 1930 | 132 | 47.8 | 6 | 4.5 | 25 | 18.9 | 41 | 31.0 | 44 | 33.3 | 12 | 9.1 | 2 | 1.5 | 2 | 1.5 |
| 1931 | 93 | 46.5 | 6 | 6.4 | 23 | 24.7 | 31 | 33.3 | 16 | 17.2 | 13 | 14.0 | 4 | 4.3 | 0 | 0.0 |

Of interest in table 1 is the fact that for the past seven years the average number of cases between the ages of 20 and 30 is above the average for the whole series at this age. We have no explanation to make for this, but it has been the impression of those seeing many of these cases each year that the disease is now occurring in younger women more often.

TABLE 2.—*Age at Which Cancerous Disease of the Cervix Begins* *

| Age | Number of Cases | Percentage |
|---|---|---|
| 17 years | 1 | 0.026 |
| 19 years | 1 | 0.026 |
| 20 to 30 years | 114 | 3.3 |
| 30 to 40 years | 770 | 22.2 |
| 40 to 50 years | 1,196 | 34.2 |
| 50 to 60 years | 856 | 24.6 |
| 60 to 70 years | 340 | 9.8 |
| 70 years | 193 | 5.5 |
| Total | 3,471 | |

* Average age incidence equals 48.2 years.

### CONCLUSIONS

The average age incidence of cancer of the cervix has not changed in the last fifty years.

At this clinic there has been a very slight increase in the incidence of occurrence between the ages of 20 and 30 during the last few years. Although cancer of the cervix is chiefly a condition of middle life, its occurrence in younger women must always be kept in mind, especially by the general practitioner when he faces a differential diagnosis of cervical disease.

1418 Eutaw Place.

# Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

## OVALTINE NOT ACCEPTABLE

### A Chocolate Flavored Dry Malt Extract Containing a Small Quantity of Dried Milk and Egg

Ovaltine, widely known throughout the world because of extensive advertising, is sold with two slogans: "A food beverage" and "A food concentrate." Because of its extensive exploitation, because it is stated to be widely recommended by physicians as a building and strengthening food in convalescent and other invalid conditions, because of the special stress placed on it as a means of inducing calm, natural sleep without the use of drugs, and because recent advertising has emphasized the alleged vitamin and diastase content, the Committee on Foods thought it desirable to consider the nature of the product and the claims made for it even though this preparation has not been voluntarily submitted to the committee.

Ovaltine as sold in the United States is manufactured by the Wander Company, Chicago. The Connecticut Experiment Station in 1917 reported its composition as follows:

Bulletin 200, Food Products and Drugs, 1917, page 154: "Ovaltine. Ovaltine, Tonic Foods Beverage. A. Wander, London, England. 'A concentrated extraction from malt, milk and eggs, flavored with cocoa.' 'Is rich in lecithin, the assimilable organic compound of phosphorus. It is thus a valuable article of food in cases of mental and nervous exhaustion.'

| | |
|---|---|
| Water | 1.03 |
| Ash | 3.52 |
| Protein ($N \times 6.25$) | 12.75 |
| Fat | 5.58 |
| Fiber | 0.64 |
| Nitrogen-free extract | 76.48 |
| Lecithin phosphoric acid | 0.10 |
| Reducing sugars (chiefly maltose, lactose, dextrose and dextrins) | 70.01 |
| Active amylase | present |
| Starch | trace |
| Calories per 100 grams | 407 |

"The product appears to be composed of the foods claimed. The small amount of lecithin phosphoric acid present, 0.10 per

cent, hardly seems to justify the claim that the food is 'rich in lecithin' or that it is 'a valuable article of food in cases of mental and nervous exhaustion.'"

In 1927 a supplementary statement said:

"32813. Ovaltine. The Wander Company, Chicago, Illinois.

"Analysis:

| | per cent |
|---|---|
| Moisture | 1.65 |
| Ash | 3.80 |
| Protein (N × 6.25) | 13.44 |
| Fiber | 0.18 |
| Starch | none |
| Sugars (as dextrose) | 39.53 |
| Undetermined carbohydrate (largely dextrin) | 35.32 |
| Fat | 6.08 |

"A product of the same name was analyzed in this laboratory in 1917 in which an active amylase was present and a small amount of lecithin phosphoric acid was found. We have not examined the newer product for amylase or for lecithin phosphoric acid, but otherwise the composition is substantially the same as previously found. The label declaration implies a high vitamin content, but we have made no biological tests for vitamin. The original sample examined was an English product claimed to be made from malt, milk and eggs."

It seemed desirable to compare the diastatic value of Ovaltine to that of U. S. P. Malt Extract:

*Diastatic Value.*—The method described under "Extract of Malt," page 147 of the U. S. Pharmacopeia, was used to determine qualitatively the diastatic value of a sample of Ovaltine purchased in a drug store in Chicago. The test indicated that active diastase is present in Ovaltine in somewhat less quantity than that of an equal weight of U. S. P. Extract of Malt, which latter is sufficient to convert "five times its weight of starch into water soluble sugars." Therefore, Ovaltine is not equivalent to U. S. P. Malt Extract in its amylolytic properties.

*Advertising Claims.*—Ovaltine is exploited as a "Swiss food discovery" and "a scientific food concentrate; containing in highly concentrated form practically every single food element necessary to life." It is stated to be "recommended by 20000 physicians the world over . . . for many purposes, both in health and sickness . . . as a building and restorative food for convalescents and invalids; for stomach disorders and feeble digestion, for nervous and rundown conditions; as a means of inducing calm, natural sleep without the use of drugs; for growing children, particularly those under par or underweight; as a pick-up and restorative food drink for busy workers; a food for expectant and nursing mothers to maintain their strength and promote the flow of milk."

It is claimed that Ovaltine "actually makes children want to eat more—and increases the nourishment and digestibility of every bite they take; taken regularly, it usually adds a pound or more a week to a child's weight and has a noticeable effect in curbing nervousness; it (has) solved the problem of feeding invalids . . . and is also solving for modern mothers the problem of child feeding. It constitutes in itself a complete food . . . makes milk digest twice as easily . . . contains 'lecithin' which is a direct nerve food. A few days' use of Ovaltine usually curbs nervousness noticeably. Of greatest importance, Ovaltine contains in high proportion a remarkable food element 'diastase' (A substance which gives one food the power to digest the starch content of other foods in your stomach). It will digest four to five times its own weight of other foods."

### DISCUSSION OF ADVERTISING CLAIMS

In advertising appearing in women's periodicals during September, 1931, much emphasis is placed on the Ovaltine oatmeal test. The reader is urged to add three teaspoonfuls of Ovaltine to a cereal dish of cooked warm oatmeal and to see how the Ovaltine digests the starch content, thereby speeding up the digestion and creating a sensation of hunger. Any physician will realize that the test is one of those pseudoscientific demonstrations calculated to confuse rather than to enlighten and leading thereby to unwarranted inferences. Although Ovaltine does contain some active diastase there is little reason to believe that the addition of Ovaltine as a beverage to the diet of a child will hasten the digestion of cereals or induce hunger. Ovaltine does not have the diastase content of U. S. P. malt extract and will not digest four to five times its weight of other foods. Such effect as it has concerns starch digestion only. There is no apparent reason why it should affect to an appreciable extent the digestion of a mixed meal. If there is any evidence that Ovaltine actually does speed up digestion and empty the stomach sooner than usually is the case, that evidence is not available in scientific literature.

The claim that lecithin, which may be considered one of the ingredients of Ovaltine since it is derived from the eggs, is a direct nerve food is about as preposterous as the old claim that fish is to be considered a brain food. The strange notion that any substance taken into the stomach will be selected by the blood and carried directly to the nerves and to the brain, thus giving them the physical properties that they possess, is not substantiated by any physiologic knowledge. True, nerve and brain tissue contain phosphorus, but the feeding of vast amounts of phosphorus will not enhance the functions or the qualities of these highly specialized tissues.

On a par with the claim for lecithin is the one on which so much emphasis is laid in both periodicals and radio advertising for Ovaltine. This drink is urged as a cure for insomnia, as a preparation which induces natural sleep in the most severe cases, as a method to induce restful instant sleep entirely without drugs. The claim is based quite obviously on the well established fact that any warm drink taken before going to bed is an aid to overcoming restlessness. No doubt much of the effect is physiologic, some of it perhaps the same type of physiologic reaction as the general relaxation that accompanies the application of warmth. There is not, however, in Ovaltine any specific sleep-producing principle. It is not to be considered a hypnotic, a narcotic or a sedative, and it will not accomplish for severe cases of nervous diseases or stubborn cases of insomnia what can be accomplished by proper psychologic study, suitable physical therapy, such as a warm bath, or the proper administration of selected medicinal preparations.

Ovaltine may be said to represent an example of the way in which well recognized foods are exploited like "patent medicines" to credulous and ignorant people. Here is the emphasis on impaired digestion, sleeplessness and nerves; here again the pseudoscientific claims; here again the exploitation of a foreign chemist and the mystery associated with the type of advertising that was used to build "Sanatogen," the glorified cottage cheese, into America's most popular nerve tonic more than a decade ago.

To this now is added the claim for vitamin content. The reader is told that Ovaltine has a high content of appetite-producing vitamin B. When another preparation was announced to be fortified with vitamin D, the promoters of Ovaltine immediately assured readers that it contained this interesting substance. Possibly the content of eggs, although low, does provide some vitamin D. Quite likely its content of malt does assure a possible content of vitamin B! But what assurance has the user that the vitamin B that it contains is preserved unchanged? What assurance does he have that the vitamin D that is present is there in such amount as to be of any service whatever?

Ovaltine is advertised as a "quick pick-up" and "for adding five pounds a month to your child's weight." Ovaltine has a food energy value of approximately 120 calories per ounce. The label directions call for the addition of from one to three heaping teaspoonfuls to one glass of milk, which addition is equivalent to from 100 to 150 calories to the 175 calories of the one glass of milk. The food energy value of one glass of Ovaltine in milk prepared according to directions is therefore approximately 1.7 times that of the milk itself. A one ounce slice of bread contains about 75 calories. Ovaltine is essentially a carbohydrate food, and its value in gaining weight is no more nor less than that of other similar carbohydrate mixtures.

There are now available in the open market for those who wish to purchase beverages of this character several products of known composition advertised honestly with claims based on their actual content. In contrast, Ovaltine is sold with grossly exaggerated claims; its composition is kept a mystery, and even if it did contain what the manufacturer says it does, it could not do the things the manufacturer says it will. The exploitation of Ovaltine represents a flagrant abuse of recognized principles in food advertising; it is in many respects not in accord with scientific fact and therefore misleading to the public. For these reasons the Committee on Foods makes available this statement and lists Ovaltine among the products not acceptable.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

*Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.*

SATURDAY, DECEMBER 12, 1931

## BLOOD DISTURBANCES AND THROMBOGENESIS FROM CLINICAL INTRAVENOUS INJECTIONS OF DEXTROSE SOLUTIONS

In intravenous medication, more attention is often devoted to the details of technic of the injection than to the changes that may occur in the blood and in important physiologic functions following such administration. Even the apparent benefits of such injections are sometimes attributed to some trivial modification of a technic or to some minor or inconsequential modification of a solution. More important than such technical accessories in the choice of intravenous medication is the fundamental fact that agents, drugs or solutions so injected act as foreign agents in the blood stream. The presence of foreign bodies in the normal circulation, the direct effects on the blood and the indirect or reflex effects on various functions are obviously significant. The fact that the disturbances might be greater and more serious in pathologic conditions, in which intravenous solutions may be indicated, has scarcely received the consideration it deserves. Hence the results with intravenous dextrose solutions on patients reported by Stuber and Lang [1] of the City Hospital in Kiel, Germany, are timely, and worthy of the attention of all physicians who practice such injections.

Using 20 cc. of 20 per cent dextrose solution, Stuber and Lang made observations of changes in the coagulation time, glycolysis, alkali reserve, $p_H$, and protein and chloride content of the blood of a large number of healthy individuals and of patients with cardiac decompensation. The most notable and constant change was an acceleration of blood coagulation, which was faster in patients with decompensation than in normal individuals. Other noteworthy changes in decompensation were increases in glycolysis and of lactic acid, also variations in mineral content, disturbed albumin-globulin ratio with increases in the globulin and fibrinogen fractions, increase in thrombocytes associated with a decrease in their electrical charges, and agglutination of platelets. All changes in blood chemistry were more extensive in patients with decompensation than in the normal. Collectively, the phenomena observed were characterized as profound physical-chemical changes in the blood, which would favor the formation of thrombi and emboli. The more definite changes in decompensation were attributed to blood stasis, a condition known to favor embolism or thrombosis, which may be directly initiated and thus rendered easier of formation by a foreign intravenous solution. The blood changes caused by the latter fulfil the requirements for thrombus formation, according to previous studies of the same authors.[2] These results of intravenous medication merit serious thought.

Intravenous injections in general should be appraised more carefully than is usually the case. The results reported by Stuber and Lang are convincing; in fact, they confirm experimental evidence previously emphasized by The Journal. Against a background of such correlated experimental and clinical evidence, much that has been claimed for intravenous medication appears doubtful.

The clinical significance of these phenomena cannot be overlooked in view of reported cases with disturbing symptoms and even of death following intravenous injections of dextrose. Such reports have been recently published by Askey and Hall,[3] Ylanan,[4] and Opitz.[5] The symptoms, which appear to be common to such injections, consist of flushing of the face, headache, marked rise of body temperature, severe chills, diuresis and sometimes collapse. Although death in Askey and Hall's case was attributed to the intravenous dextrose, caution should be exercised in the correct interpretation of clinical cases with severe disease. Yet it is under just such conditions that the results of Stuber and Lang enjoin great caution on the physician attempting treatment by the intravenous method. In this connection, the recent report by Helmholz [6] of the Mayo Clinic, on the effects of hypertonic sucrose solutions injected intravenously, should not be overlooked. This solution is reported to have caused renal tubular injury from which recovery appears to have occurred, although some chronic changes persisted.

In contrast to the experimental and clinical evidence here cited is the commercial propaganda disseminated through the organs of proprietary manufacturers who advocate and exploit all sorts of substances and solutions for intravenous injection. It is unfortunate that credulous and uncritical physicians accept these claims and thoughtlessly jeopardize the lives of their patients. Probably the height of absurdity, if not of recklessness,

1. Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154**: 50, 1930.

2. Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154**: 22, 1930.

3. Askey, E. V., and Hall, E. M.: California & West. Med. **32**: 394 (June) 1930.

4. Ylanan, C. R.: J. Philippine Islands M. A. **10**: 440 (Oct.) 1930.

5. Opitz, H.: Klin. Wchnschr. **1**: 117 (Jan. 15) 1922.

6. Helmholz, H. F.: Proc. Staff Meet. Mayo Clin. **6**: 124 (Feb. 25) 1931.

has been reached in the endorsement of orange juice intravenously. A physician of South Africa [7] has stated that he gave intravenous injections of raw, unneutralized orange juice (10 cc. in 150 cc. of physiologic solution of sodium chloride) at intervals to a patient and that this caused steady improvement and disappearance of all symptoms of scurvy and saved the man's life. Such a procedure could have amounted to nothing more than a spectacular test of the patient's heroic resistance to a foreign agent. Nevertheless the obvious reasoning of the physician—*post hoc ergo propter hoc*—and the single uncontrolled case did not prevent the report from becoming a "contribution" to medical literature and thus abetting the abuse of "intravenous therapy."

Nearly every physician has observed sudden and alarming symptoms accompanying intravenous injections. The practical difficulties are that the changes and symptoms are not exactly predictable, and the solution or drug, once it is in the circulation, is not retrievable. Before attempting such injections, the physician should keep in mind the physical-chemical changes which occur from the sudden introduction of foreign agents into the blood stream, and the necessity for great caution and restraint in the administration and choice of remedial agents for intravenous use.

## THE GENEVA CONVENTION OF 1931

The international conference on the limitation of the manufacture of narcotic drugs, held in Geneva, Switzerland, during the past summer, was guided not only by altruistic motives but also by practical objectives. The treaty resulting from the conference should be a beneficial influence in helping to solve the medicosocial problem of drug addiction, in simplifying the administration of laws and regulations governing the distribution and uses of these drugs, and in reducing the quantity of contraband arriving at American ports. Approximately three and a half tons of contraband narcotic drugs was seized last year, all destined for illegitimate trade and originating outside the Western Hemisphere. The quantity of contraband confiscated indicates the extent of the illegitimate market for these substances. This factor is all the more important when it is appreciated that drug addiction becomes established at a much earlier age than is generally supposed; almost half, or 47 per cent, of addicts who come within the purview of observation have their habit established before reaching the age of 25 years, and two thirds, or 66 per cent, before age 30. Measures, therefore, that will tend to lessen the avalanche of contraband drugs reaching American shores are of great importance to this and the rising generation.

Drug addiction occurs in most unexpected places. No occupation possesses a monopoly of the practice. While it appears to be more common in the larger urban communities, where accessibility to the drug is probably greater, the geographic distribution of narcotic drug addiction is comparable to the distribution and concentration of the general population. Its geographic distribution may be compared to an endemic disease that is being engrafted on the people.

One problem of narcotic drug law enforcement in the United States is the prevention of the unlawful introduction of drugs from abroad. Domestic manufacture in the United States is limited so closely to the medical needs of the country that diversion of home-manufactured products is comparatively negligible. Foreign overproduction, however, in excess of the amounts needed for medical and scientific purposes supplies the international illegitimate trade. It is impossible, therefore, for the United States to set its house in order in this regard without the cooperation and assistance of other governments in limiting the manufacture of narcotic drugs to medicinal and scientific needs.

The Geneva convention of 1931 is designed to control further the international traffic and distribution of narcotic drugs and to limit the manufacture of all dangerous and potentially dangerous narcotic drugs to medicinal and scientific requirements. The medical, pharmaceutic, dental and veterinary professions continue as custodians of these narcotics which are so essential in the treatment of the sick. The conference recognized the impossibility of applying, effectively, any scheme for the limitation of manufacture without means of limiting the quantity of raw materials, which factories are permitted to transform into narcotic drugs. The scheme for limitation of manufacture involves the transmission by all countries of estimates of the quantities of narcotic drugs required for domestic consumption and the control of exports from manufacturing countries. The manufacture of narcotic drugs is indirectly limited in the United States already, and the convention does not effect any further limitation of manufacture in this country. Dangerous and potentially dangerous drugs, codeine being included in the latter since it is so easily transformed into dangerous substances, come within the purview of limitation. Annual estimates to be submitted by each government as to the needs for narcotic drugs are based solely on medicinal and scientific needs. Newly discovered products obtained from the dangerous alkaloids of opium or from the ecgonine alkaloids of the coca leaf are restricted to the use of import and export certificates in international traffic until their dangerous properties have been determined. The quantities to be manufactured in any country come within the limit of the annual estimates for medical purposes, thus fixing a definite quantity that may be manufactured. Stricter supervision is to be maintained over the amounts of raw material and manufactured drugs in possession of every manufacturer, including accountability for drugs produced and their disposal; quarterly reports are to be submitted to a central agency,

7. Spencer, H. A.: South African M. Record **24**: 386 (Sept. 11) 1926.

thus setting up, in keeping with previous international agreements, a system or scheme for accounting for the manufacture of narcotic drugs and their distribution in the international trade. More stringent control is to be exercised over imports and exports, and diacetylmorphine (heroin) is to move but once in international traffic.

The Geneva convention of 1931, for limiting the manufacture of narcotic drugs, is of great potential value to the population of the United States. It embodies many features found in the legislation now in effect in the United States, constituting an additional reason for ratification by the Senate. Its ratification should have the support and endorsement of the medical profession.

## FOOTBALL FATALITIES

A leading educator [1] remarked several years ago that nothing is more exasperating than to be compelled to witness a great tragedy which we know could be prevented if we could only do the right thing. He added that probably physicians in earlier times felt much the same way when they saw their patients die by the scores during some epidemic with which they were powerless to cope. Until the last half century, he continues, all who had to do with disease were so bound by the bonds of ignorance that they were well-nigh powerless. Meanwhile the progress of science and the unremiting efforts of its numerous devotees in the field of medicine have brought about extremely commendable changes resulting in a shift from the high mortality of an earlier period to the relatively low figures for the present generation. It has been a story of the routing of many scourges, the elimination of the terrors of wound infection, the conquest of yellow fever, the control of malaria, and varied similar experiences that have increased human happiness. Meanwhile great concern is obvious for less spectacular menaces—for the losses from lowered physical efficiency, preventable disorders and bodily injuries. Industrial hazards are attracting the attention of preventive medicine. Efforts are widespread to avert the growing number of accidents incident to the "speed" of present-day life.

Occasionally, disconcerting reports that cannot be lightly thrust aside arouse thoughtful persons to cynical reflections. There is, for example, the annual record of the toll of the firearm, the firecracker and similar "patriotic playthings" that tend to make Independence day recall unnecessary deaths and injuries. The Fourth of July fatalities seem to be confined for the most part to the less intelligent groups in our population. Another harrowing challenge, however, presents itself at the very gates of our most distinguished centers of learning, the American schools, colleges and universities. The now closing football season has taken a toll of thirty or more lives in addition to producing injuries the number and consequences of which cannot even be conjectured. Each new tragedy or distressing accident arouses nation-wide expressions of sympathy and protest only to be completely forgotten in the excitement of the next game.

Football is not a game for the untrained; it calls for strength and courage; its accidents and fatalities need not, however, be inevitable. Those who are devoting their energies to the conservation of life should not sit by listlessly and join in the coaches' lament of "a sad but inevitable death." We must not condone the reckless disregard of the limitations of human endurance and the return of injured players to the field, all for the glory of Alma Mater and the enjoyment of thousands of holiday seekers in the great stadiums.

Physical culture and athletic sports are not intended to develop supermen. At the recent White House Conference on Child Health and Protection, Secretary Ray Lyman Wilbur [2] remarked that we want to see our children develop into adult citizens with wholesome bodies and prepared minds, both under the control of the developed will operating in the atmosphere of what we call character. Does such a program call for a mortality record incident to the tasks? Surely not! The general objectives of a rational plan are to inculcate health habits; to develop the body harmoniously through systematic exercises; to correct physical defects; to form habits of exercise for use in after-school days; to provide situations which will arouse and increase the qualities of courage, fair play, self sacrifice and loyalty; and to give instructions in citizenship through leadership and response to commands.[2] We should be able to discover a way by which these aims can be attained without loss of life in our athletic ventures. Football has a greater incidence of fatalities and permanent injuries than any other sport. The rules committee may well consider carefully what it can do to lessen the hazards of this game.

## PANACEAS FOR THE COMMON COLD

With the first blasts of wintry air a considerable number of our citizenry begin to develop the running of the nose, the lacrimation, the depression, the fever and the other symptoms commonly associated with the onset of a cold. No doubt, the vast majority of the practice of physicians is concerned with symptoms of this character. Probably no other disease is responsible for so much temporary disability. From the teachings of the hygienists, the sanitarians, the public health writers and physicians, most of the public have learned that the symptoms can be abated and the cold controlled in the majority of instances if the patient will go promptly to bed and stay there for at least three days. Actual observation indicates that less than one half of one per cent of people really follow this advice.

The promoters of various types of devices and foods associated with health maintenance have been prompt

1. Harris, F. S., and Butt, N. I.: Scientific Research and Human Welfare, New York, Macmillan Company, 1924.

2. White House Conference, New York, Century Company, 1930.

to take advantage of every possibility for exploiting their materials in connection with the universality of the common cold. Vitamin D has been vaunted for this purpose in the form of ultraviolet rays, cod liver oil, cod liver oil concentrates, irradiated foods and what-not, notwithstanding the fact that there is not the slightest scientific evidence to indicate that excess of vitamin D will prevent a cold or have any effect in curing it.

More recently evidence has been offered to indicate that in mice an excess of vitamin A favorably affects the tissue of the respiratory tract. Thus far, however, there is not sufficient actual evidence to warrant any claim at all for the use of vitamin A in preventing a cold. Nevertheless, the National Dairy Company, through one of its subsidiaries, presents the following statement in its advertising:

"Dr. E. V. McCollum, world-known nutritionist from Johns Hopkins, in an address before the American College of Physicians, stated that lack of Vitamin A and common cold are linked together.

"Think what this means! If your body contains plenty of Vitamin A, you are not so likely to get a 'cold.'

"What common, economical food is the best source of Vitamin A? Milk! If you consume four glassfuls daily—either as a beverage, or in cream soups, creamed vegetables, custards, ice cream, etc.—you will have enough of this priceless vitamin to help guard you from 'colds.'"

For this statement again it may be said there is not adequate evidence.

An old English general practitioner, when asked what was the best thing to get for a cold, replied "Two dozen soft linen handkerchiefs." The tendency of the common cold is to be self-limited. At the end of three days the patient is generally better or beginning to get a more serious disease. The simple home remedies established by use in the last century will continue to be employed with considerable satisfaction by most people. They involve going to bed, indulging in perspiration by the use of hot water bottles and warm drinks slightly alkaline, the prescription of remedies somewhat antipyretic and analgesic, and watchful waiting for the onset of symptoms indicating any complication.

In the meantime, both the physician and the layman may well be advised to distrust conclusions as to the prophylactic value of any device or preparation for the common cold beyond the well established hygienic advice to stay out of crowds, to keep the head cool and the feet warm, and specifically to keep away from people who have colds. Our modern housing and transportation make the last mentioned measure almost an impossibility.

As concerns vitamin A particularly, it has been established that it has in mice the virtue of maintaining the integrity of the epithelial linings of the mucous tracts and the skin. Acceptable evidence in support of its specific virtues as related to the common cold is not available. Indeed, such evidence as is available tends to indicate that it has little if any important virtue in this regard.

# *Current Comment*

## THE TREND OF ADVERTISING

When any industry or profession begins to take stock of its own methods with a view toward reform, those methods have probably evolved to a point at which they are antisocial and opposed to the general good. Today, leaders in the advertising field are protesting in their own organizations against abuses to which THE JOURNAL has been referring for several years. In a recent address before the Advertising Council of Chicago, Mr. Ralph Starr Butler of the General Foods Corporation emphasized the fact that the public is not sufficiently educated to recognize exaggerated and untrue claims in most instances and that the continued use of such claims by many advertisers is likely to lead eventually to disappointment and to cause the public to indict the veracity of advertising as a whole. Mr. Butler was particularly concerned, however, with the type of advertising which discusses the competitor's product rather than the goods of the manufacturer who purchases the space. In good times, when conditions are generally satisfactory, most manufacturers and most salesmen find business so easy to secure that they concern themselves only with the sale of their own products. In times of economic stress, however, the average individual travels about with a chip on his shoulder, ready to attack his competitor for what may be merely the results of bad times or perhaps merely his own failure. Mr. Butler referred particularly to the type of advertising now employed by several manufacturers of cigarets. The claims made are mutually contradictory, and it seems reasonable to believe that sufficient emphasis on these points to the public will lead intelligent readers eventually to the opinion that neither of the products is good. In the thesis emphasized by Mr. Butler there is a lesson for the medical profession, the hospitals and all those associated in the practice of medicine today. Much is to be gained by mutual activity, by helpful cooperation and by education of the public in the service that medicine is able to render. In some communities, various medical groups associated with individual hospitals, with individual schools or in other ways have reflected unfavorably to the public on their presumably competitive neighbors. Such reflections will do little to aid those who make them; their ultimate result will probably be harm to the practice of medicine as a whole in that community.

## INSULIN—A PROTEIN

In the latest edition of his well known book on the treatment of diabetes mellitus, Joslin[1] remarks that "diabetes is no longer fatal and the diabetic has ceased to die of his disease." One of the main factors, and probably the most important influence, in bringing about this beneficent result has been the discovery of insulin and the introduction of its use. The continued efficacy of the commercial preparations of the pancreatic hormone that are now everywhere available has brought

1. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 4, Philadelphia, W. B. Saunders Company, 1929.

much happiness. The duration of life for diabetic children, who seldom survived diabetes for more than two years in former days, has already been trebled. Joslin says, "The diabetic child of today is a living and not a dying diabetic." In view of these cheering statements it will readily be understood why scientists are at present so deeply concerned about the chemical nature and properties of insulin, the substance that possesses such remarkable physiologic potencies. Indeed, its uniqueness seems to be accentuated as the years pass by. The early investigations of insulin gave indications that it is either a protein or a protein-like substance or something closely associated with proteins in nature. Very active preparations give many of the familiar protein test reactions; they yield familiar amino-acids so characteristic as protein disintegration products; they are destroyed by digestion with proteolytic enzymes, namely, trypsin and pepsin. Then came the splendid contributions from the laboratory of Abel at Johns Hopkins University, resulting in the preparation of highly purified, optically active crystalline products. To the chemist the production of crystals out of amorphous residues always represents an apparent step in the direction of greater purity. Using crystalline insulin as a material for new studies, Sjögren and Svedberg [2] of the University of Uppsala have estimated its molecular weight by their ultracentrifugal methods. It approximates 35,100. Insulin is stable from a $p_H$ of about 4.5 to about 7.0; at higher or lower hydrogen ion concentrations the molecule is broken into smaller units. The molecular weight, sedimentation constant, molar frictional constant and molecular radius of insulin are within the limits of error identical with the corresponding constants for egg albumin and Bence-Jones protein. This circumstance makes it extremely probable that insulin is a well defined protein and that the physiologic activity of this hormone is a property of the insulin molecule itself or of some special group within it. Recent months have witnessed the successful crystallization of several enzymes—urease, pepsin, trypsin and amylase—and the growth of new evidence that these, too, presumably belong to the category of proteins.

## Association News

### MEDICAL BROADCAST FOR THE WEEK

#### American Medical Association Health Talks

The American Medical Association broadcasts at 11:15 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 19. Diphtheria Prevention.

Five Minute Health Talks may be heard over Station WBBM of the Columbia Broadcasting System from 2:25 p. m. to 2:30 p. m. on Monday, Wednesday and Friday.

The program for the week is as follows:

December 14. Diphtheria Prevention.
December 16. Diphtheria Prevention.
December 18. Diphtheria Prevention.

The broadcast this week is in conjunction with the Chicago health department.

2. Sjögren, B., and Svedberg, T.: The Molecular Weight of Insulin, J. Am. Chem. Soc. **53**: 2657 (July) 1931.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Personal.**—Drs. William R. P. Clark and John H. Graves have been appointed members of the state board of health to succeed Drs. Adelaide Brown and Edward F. Glaser, resigned. ——Dr. Eli A. Kusel has been appointed city health officer of Oroville, and Dr. Edwin B. Godfrey, health officer of San Bernardino County to succeed Dr. Samuel B. Richards.——The city of Santa Paula health department has been taken over by the county health department.

**Outbreak of Trichinosis.**—Sixteen cases of trichinosis caused by the eating of jerked bear meat were recently reported in Vallejo, San Francisco and Oakdale. September 16, a Vallejo boy killed a bear in Trinity County. A number of persons ate steaks, roast and liver from the bear and the remainder was jerked and smoked. A San Francisco man took a portion of the jerked meat home and the remainder was brought to Vallejo. This meat was distributed among families in Vallejo, San Francisco and Oakdale, where cases from this source occurred. The boy who shot the bear died, October 13. According to the state department of health in its bulletin, November 14, it is possible that more fatalities will occur. A sample of the meat sent to the state laboratory was found positive for Trichinella spiralis.

### COLORADO

**License Reinstated.**—At a meeting of the state board of medical examiners, October 6, the license of Dr. George D. Hoschouer, Denver, was reinstated. Dr. Hoschouer's license had been revoked, April 7, for unprofessional and dishonorable conduct in associating with an unlicensed man.

**Society News.**—Dr. Max M. Ginsburg addressed the Medical Society of the City and County of Denver, November 17, on "Septicemia in Children"; Dr. George M. Blickensderfer presented a case of psychoneurotic vomiting.——Dr. Marion D. Douglass, Jr., Cleveland, addressed a meeting at the University of Colorado School of Medicine, Denver, November 23, on "Tumors of the Urethra."

### FLORIDA

**Society News.**—The Florida Public Health Association held its annual public health conference, December 7-10, in Jacksonville. The opening address was given by Governor Doyle E. Carlton on "The State in Public Health"; among others, Dr. John A. Ferrell of the Rockefeller Foundation, New York, spoke on "Education and Training of Public Health Personnel."——Dr. William E. Ross, Jacksonville, addressed the Orange County Medical Society, Orlando, October 21, on "Milk, with Special Reference to the Value of Certified Milk to the Individual and a Certified Dairy to a Community," and Dr. Joseph H. Chiles, Orlando, gave a paper on "Infantile Impetigo Contagiosa."——The Central Florida Medical Society was addressed at its semiannual meeting in Ocala, October 15, by Drs. Gaston H. Edwards, Orlando, and James Ralston Wells, Daytona Beach, on "The County Society" and "The Public Relations Committee's Activities," respectively. Dr. Edwards also addressed the October 14 meeting of the Polk County Medical Society in Bartow on "Cooperation of Individuals and of County Societies as a Means of Benefit to Them and to the State Association," and Dr. Kenneth Phillips, Miami, spoke on "Essential Nature of Bronchial Asthma."——Dr. Robert A. Strong, New Orleans, addressed the Duval County Medical Society, Jacksonville, October 2, on "Our Newer Knowledge of Nutrition."

### GEORGIA

**Meningitis at Federal Penitentiary.**—Four cases of spinal meningitis with two fatalities were reported between November 8 and November 19 at the federal penitentiary, Atlanta. Three new cases were reported, November 28. According to the newspapers, no new commitments will be sent to the penitentiary until the disease has subsided. Prisoners destined for the institution will be sent to Leavenworth and to the reformatory at Petersburg, Va. It was stated that the Atlanta penitentiary is overcrowded, the present population having been

reported as about 3,800, nearly double the prison's capacity of 2,000. Members of the U. S. Public Health Service have been in constant attendance at the institution since the disease was reported, to prevent its further spread.

## ILLINOIS

**Society News.**—Dr. Albert B. Yudelson, Chicago, addressed the Peoria City Medical Society, December 1, on "Relief of Symptoms of Tabes Dorsalis."——Dr. Charles Spencer Williamson, Chicago, addressed the DeWitt County Medical Society, Clinton, November 30, on pneumonia.——Dr. Chester H. Warfield, Chicago, addressed the Will-Grundy Counties Medical Society, December 2, on bone tumors.

### Chicago

**Personal.**—Drs. Douglas Gordon Campbell and Margaret W. Gerard have been appointed heads of the psychiatric service in the University of Chicago's Student Health Service to succeed Dr. Stewart B. Sniffen, who resigned because of ill health. ——Dr. Herman N. Bundesen, health commissioner of Chicago, has resigned as coroner of Cook County.

**Society News.**—The Chicago Society of Internal Medicine will be addressed, December 14, among others, by Drs. William A. Brams and Louis N. Katz on "Nature of Fibrillation and Flutter of the Heart."——At the meeting of the Chicago Surgical Society, December 11, Dr. Samuel J. Fogelson, among others, spoke on "Treatment of Peptic Ulcer with Gastric Mucin."——A symposium will be held before the Chicago Medical Society, December 16, on the infantile cerebral palsies (The Spastic Child); the speakers will be Drs. H. Douglas Singer, Julius H. Hess, Henry B. Thomas, Abraham A. Low, and Miss Jane A. Neil, assistant superintendent of the public school system of Chicago.

**City Council Approves Vivisection Ordinance.**—At a meeting, December 1, the city council by an overwhelming majority approved an ordinance which permits the mayor to name a supervisor of the pound and release unclaimed dogs to medical schools and research laboratories approved by the city health commissioner and the chief of police for experimental work in medicine. This ordinance was a substitute for one submitted by antivivisectionists, which would prevent the medical schools and research institutions of Chicago from obtaining animals from the pound for experimental purposes. At a hearing of the judiciary committee of the city council, November 3, the speakers in opposition to the latter ordinance included Robert Maynard Hutchins, president, University of Chicago; Drs. Anton J. Carlson, professor of physiology, University of Chicago; Andrew C. Ivy, Nathan Smith Davis professor of physiology and professor of pharmacology, Northwestern University Medical School; David J. Davis, dean, University of Illinois College of Medicine; Louis D. Moorhead, dean, Loyola University School of Medicine, and Herman L. Kretschmer, president-elect, Chicago Medical Society.

## LOUISIANA

**Society News.**—At the thirteenth annual fall meeting of the Sixth District Medical Society in Jackson, October 14, the speakers included Drs. Sidney C. Barrow, Shreveport, on "Economic Trend in Medicine"; Charles S. Miller, Jr., Jackson, "Psychiatry and the General Practitioner"; Lester J. Williams, Baton Rouge, "Roentgen Ray in Skin Diseases," and Lucius D. McGehee, Hammond, "General Practitioner and Specialist."

**Recent Changes at Tulane University.**—The following changes in the faculty, among others, at Tulane University of Louisiana School of Medicine, New Orleans, have recently been announced:

Dr. William Harvey Perkins, professor and head of the department of preventive medicine.
Dr. Bruce Peck Webster, assistant professor of medicine.
Dr. Kiyoshi Hosoi, Honolulu, Hawaii, instructor in surgery.
Dr. Howard Raymond Mahorner, instructor in surgery.
Dr. Ambrose Howell Storck, instructor in clinical surgery.
Dr. Durward Olera Wright, instructor in medicine.
Dr. Herbert John Schattenberg, instructor in pathology and bacteriology.

The following new appointments in the Graduate School of Medicine of Tulane were also announced:

Dr. Joseph Hume, director, division of urology.
Walter Clarence De Rouen, Jr., D.D.S., assistant professor of oral hygiene.
Dr. Frank James Kinberger, assistant professor of clinical pediatrics.
Dr. Eugene B. Vickery, assistant professor of urology.
Dr. Hymen Leon Cohen, clinical assistant in obstetrics.
Dr. John Ashby Colclough, clinical assistant in operative surgery.
Dr. Warren Leucht Rosen, clinical assistant in medicine.
Dr. Philip John Saleeby, clinical assistant in metabolism and dietetics.
Dr. Jack Ezell Strange, clinical assistant in pediatrics.

## MARYLAND

**Osler and Halsted Clinics Completed.**—A medical and surgical building was completed at Johns Hopkins Hospital, November 6, giving the institution a capacity of about 1,000 beds. Half of the building, the Osler Clinic, was completed and occupied in January; the other half is the Halsted Clinic. These clinics are memorials to the late Dr. William S. Halsted, first professor of surgery, and the late Sir William Osler, first professor of medicine at the Johns Hopkins University School of Medicine. The addition, which provides about 300 beds, will house only ward patients. The building cost $1,740,000, provided by a gift of $500,000 from the General Education Board and an appropriation from an anonymous gift of $3,000,000. An additional endowment is being sought to meet the cost of maintenance of the annex recently completed.

**Herter Lectures Given by Dr. Greenwood.**—The annual Herter lectures were given, December 2-4, at the Johns Hopkins School of Hygiene and Public Health, Baltimore, by Dr. Major Greenwood, since 1926 professor of epidemiology and vital statistics, London School of Hygiene and Tropical Medicine. The lectures were devoted to a discussion of experiments in the prevention and control of epidemics, beginning with a review of the historical background of epidemiology. The Herter Foundation was established in 1902 by a gift of $25,000 from Dr. and Mrs. Christian A. Herter, New York, "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science."

## MASSACHUSETTS

**Society News.**—The Boston Society of Psychiatry and Neurology was addressed, November 19, by Drs. Tracy J. Putnam on "Treatment of Dystonia Musculorum Deformans by Section of the Extrapyramidal Tracts"; Leon J. Saul and Hallowell Davis, "Action Currents in the Auditory Pathways," and Jacob Kasanin, "Pavlov's Theory of Schizophrenia."——The Cambridge Tuberculosis Association recently changed its name to the Cambridge Tuberculosis and Health Association; Dr. Hilbert F. Day is president.——Dr. Russell L. Haden, Cleveland, addressed the Harvard Medical Society, November 24, on "Development of Methods for the Determination of the Numbers, Size and Hemoglobin Content of the Red Blood Cell."——The New England Pediatric Society was addressed in Boston, November 19, by Dr. Homer F. Swift, New York, on "Rheumatic Fever."——Dr. Roderick Heffron, Boston, addressed the Hampden District Medical Society, Springfield, November 24, on "The Massachusetts Pneumonia Program"; Drs. Laurence D. Chapin and Ernest A. Gates discussed Addison's disease.——A symposium on gonorrheal vulvovaginitis featured the first annual meeting of the Neisserian Medical Society of Massachusetts, Boston, November 18.——Dr. Harold I. L. Loverud, Boston, among others, addressed the New England Roentgen Ray Society, Boston, November 20, on "Massive Collapse Complicating Pneumonia."——A program on congenital cardiovascular disease was held in Boston, December 2, by the New England Heart Association; this was the second meeting of the cardiac course for the season; the speakers included Drs. Arthur C. Ernstene, Howard B. Sprague, Hyman Green and Kenneth D. Blackfan.——A symposium on the surgical treatment of pulmonary tuberculosis featured the meeting in Waltham, December 10, of the Middlesex South District Medical Society.

## MINNESOTA

**Dr. Simons Honored.**—Dr. Edwin J. Simons, Swanville, was awarded the 1931 prize of $250 by the Minnesota Society of Internal Medicine for his monograph on primary carcinoma of the lung. The prize is offered annually to the practitioner of medicine in the state, not a member of the society, who has made the most valuable contribution to medical knowledge.

**Chiropractor Sentenced.**—George F. Sjoden, licensed chiropractor of Kensington, was sentenced to six months at hard labor in the Douglas County jail, November 12, by Judge Roeser, for practicing medicine without a license. Sjoden has been prescribing medicine and attempting to remove tonsils. After having the medical practice act and the chiropractic law very carefully explained to Mr. Sjoden, the judge suspended the sentence on condition that he pay the costs of the prosecution, that he refrain from practicing medicine in the future and that he keep the peace and be on good behavior.

**Society News.**—Dr. Moses Barron, Minneapolis, spoke on "The Importance of Hepatomegaly and Splenomegaly in Differential Diagnosis" before the Minnesota Academy of Medicine, November 11; Dr. Archa E. Wilcox presented a case report on acute condition in the abdomen complicating

pregnancy.——The Minneapolis Surgical Society was addressed, December 3, among others, by Dr. Daniel A. MacDonald on "Double Uterus and Vagina with Unilateral Atresia."——Dr. Alfred W. Adson, Rochester, among others, addressed the Minnesota Academy of Ophthalmology and Otolaryngology at a meeting in Rochester, November 13, on abscess of the brain.

## MISSOURI

**Society Celebrates Golden Jubilee.**—The fiftieth anniversary of the St. Louis Medical Society was observed at a meeting, November 24. The program included addresses by Alphonse M. Schwitalla, S.J., Ph.D., dean, St. Louis University School of Medicine, on "Men in Medicine"; Dr. Robert J. Terry, professor of anatomy, Washington University School of Medicine, "Contributors to Medicine," and Dr. Amand N. Ravold, "Brief Sketches of a Few St. Louis Physicians." Special recognition was given to the fifty years or more spent in the practice of medicine by the following physicians: Drs. Ravold, Max C. Starkloff, Carl Barck, James A. Dickson, Willis Hall, Louis Hauck, Harvey G. Mudd and Henry L. Wolfner, St. Louis; Eugene F. Hauck, Clayton, and Henry J. Harnisch, Flagstaff, Ariz. With the exception of Dr. Starkloff, who was ill, all were present. Seven of the physicians are graduates of the St. Louis Medical College, now known as Washington University School of Medicine. Entertainment included an informal reception, bridge, refreshments and dancing.

**Society News.**—At a meeting of the St. Louis Medical Society, November 6, Dr. Francis L. Reder was elected president and Dr. Alvin H. Diehr, secretary. Dr. Amalie M. Napier was elected president and Dr. Emma Phelan, secretary of the Women Members of the St. Louis Medical Society at a meeting, November 3.——The Jackson County Medical Society, Kansas City, was addressed, November 24, by Drs. Samuel H. Snider on "Bronchial Function in Pulmonary Tuberculosis"; Ralph E. Emerson Duncan, "Use of Oxygen as a Therapeutic Agent," and Harvey P. Boughnou, "Atelectasis versus Pneumonia."——Dr. Russell M. Wilder, Rochester, Minn., addressed the Kansas City Academy of Medicine, November 20, on "Diseases of the Parathyroid."——A symposium on the diagnosis of diseases and abnormalities of the gastro-intestinal tract featured a joint meeting of the Radiological Society of North America and the St. Louis Medical Society, December 1; the speakers were Drs. Thomas A. Groover and Alexander B. Moore, Washington, D. C.; Henry K. Pancoast, Philadelphia; Byrl R. Kirklin and Harry M. Weber, Rochester, Minn.; John L. Kantor, New York, and Horace W. Soper and Evarts A. Graham, St. Louis. The two societies were guests of the St. Louis Roentgen Society at a luncheon.——Dr. Leo G. Rigler, Minneapolis, addressed the St. Louis Trudeau Club, December 3, on "Roentgen-Ray Observations on Free Pleural Effusion," and Dr. Louis H. Clerf, Philadelphia, "Bronchoscopic Observations in Tuberculosis."

## MONTANA

**Society News.**—The Mount Powell Medical Society recently sponsored the first public meeting devoted to cancer that was ever held in Montana at Anaconda. More than 250 persons were in attendance. Dr. William F. Cogswell, secretary of the state board of health, spoke, and the Lewis cancer film was shown.

## NEW YORK

**Meeting of Laboratory Workers.**—The New York State Association of Public Health Laboratories held its autumn meeting in Albany, November 6. Guest speakers were Philip B. Hadley, Ph.D., Ann Arbor, Mich., on "Microbic Dissociation in Relation to Medical Bacteriology"; Dr. Fred W. Stewart, New York, "Aspiration Diagnosis of Tumors," and Chester W. Emmons, Ph.D., New York, "Variations in the Ringworm Fungi." Round table discussions were held relating to regulation of human blood donors and to isolation and identification of meningococci in the spinal fluid from cases of meningitis. In this connection the state laboratory has asked physicians to send either transplants of cultures of meningococci or specimens of spinal fluid for use in studies now in progress on the production of antimeningococcus serum. Dr. George M. Mackenzie, Cooperstown, is president of the laboratory association.

### New York City

**Third Harvey Lecture.**—William H. Taliaferro, Ph.D., professor of parasitology, University of Chicago, will deliver the third Harvey Society Lecture at the New York Academy of Medicine, December 17, on "Infection and Resistance to the Blood-Inhabiting Protozoa."

**Society News.**—Dr. Udo J. Wile, Ann Arbor, Mich., addressed the New York Academy of Medicine, December 3, on "Cutaneous Manifestations of Systemic Disease."——Dr. Harold E. B. Pardee addressed the Medical Society of the County of Queens, November 24, on "Diagnosis and Treatment of Coronary Arteriosclerosis." Dr. Frank C. Yeomans addressed the society, December 4, on diagnosis in proctology.——Drs. Norman E. Titus and George C. Andrews, Jr., addressed the Yorkville Medical Society, November 16, on "Medical Diathermy" and "Physical Therapy in Dermatology."

**Exhibit on Pure Air and Clean Streets.**—To impress on the public mind the menace to health of impure air and dusty, cluttered streets, the New York Academy of Medicine has arranged an exhibit to open January 12 and continue for eight days. It will consist of scientific instruments of precision in measuring contamination, models of modern street cleaning apparatus, stoking devices, ventilating machines and motion pictures depicting modern methods, in addition to charts, graphs and photographs. The exhibit is to be held under the auspices of the academy's committee of public health relations and the committee of twenty on outdoor cleanliness.

**Hospital Opens Unit for Middle Man.**—An experiment in the provision of hospital and nursing care for patients of moderate means was launched by Mount Sinai Hospital, November 18, with the opening of a new twelve-story building for this service. Three departures from the usual hospital practice will be instituted, the hospital has announced. These are innovations in the construction of the building, group nursing and voluntary action of the medical staff in setting a definite limitation on the fees to be charged by surgeons and attending physicians. The expense of the new service will include, for bed accommodations, $35 per week; special group or cooperative nursing, if desired, $45 per week and the fees of the medical staff restricted to a similar proportion. In the new hospital, which will accommodate 156 patients, rooms are arranged in units of two, each containing four beds in cubicles, with a nurse's substation between. Quiet rooms are provided for patients who are very ill. Lockers are used for individual patients and a built-in closet for nursing supplies. The new building is constructed of brick and limestone to harmonize with the other Mount Sinai buildings and occupies the entire Fifth Avenue frontage between One Hundred and First and One Hundred and Second streets. It cost approximately $1,250,000. One floor will house the newly organized consultation service for patients of moderate means (THE JOURNAL, July 25, p. 255).

## OKLAHOMA

**Personal.**—Dr. Wann Langston, Oklahoma City, has resigned as superintendent of the University Hospital to become professor of clinical medicine in the University of Oklahoma Medical School.——Dr. Thomas W. Stallings, Tulsa, has been appointed health officer of Tulsa County, succeeding Dr. Bernard L. Branley.

**Medical Films.**—The Oklahoma State Medical Association has purchased two films, one on the application of forceps and one on eclampsia, for circulation among the county societies. The films are kept and serviced by the extension department of the University of Oklahoma, Norman. County societies are required to see that they are handled only by qualified operators and to pay the expenses of transportation to and from Norman.

**Society News.**—Drs. Leander A. Riely and John E. Heatley, Oklahoma City, addressed the Osage County Medical Society, recently, on "Clinical Aspects of Gallbladder Disease" and "X-Ray Diagnosis of Gallbladder Disease," respectively.——Among physicians who addressed the annual meeting of the Oklahoma State Hospital Association, Oklahoma City, December 2-3, were Drs. Talbert B. Hinson, Enid, "Hospital Rates"; Frank H. McGregor, Mangum, "Effects of the Present Economic Condition on Hospital Operation"; Berry H. Burnett, Duncan, "Hospital Relationship to Practitioners of Medicine," and D. B. Collins, Waurika, "The Problem of the Ever-Increasing Automobile Accidents."

## PENNSYLVANIA

**Society News.**—Drs. John Sturgeon and Ralph P. Beatty discussed "Pyelitis in Infancy and Childhood" from the points of view of the pediatrician and urologist, respectively, before the Fayette County Medical Society, Uniontown, December 3.——Dr. Thomas A. Shallow, Philadelphia, addressed the Montgomery County Medical Society, Norristown, December 9, on intestinal obstruction.——Dr. Ludvig Hektoen, Chicago, delivered a lecture entitled "What About Scarlet Fever?" at the Western Pennsylvania Hospital, December 9.

### Philadelphia

**Society News.** — Dr. Robert J. Hunter, among others, addressed the Philadelphia Neurological Society, November 27, on "Localization of Intracranial Tumors by the Bárány Method."——Mrs. Robert J. Hunter and Henry Dintenfass addressed the Philadelphia Laryngological Society, December 1, on "Physiology of the Antrum" and "Catheterization of the Natural Ostium of the Maxillary Sinus versus Inferior Meatal Puncture," respectively.——Dr. Edwin Beer, New York, delivered the annual Mütter Lecture of the College of Physicians of Philadelphia, December 2, on "Diverticulosis of the Alimentary and Urinary Tracts."——Speakers at the meeting of the Philadelphia County Medical Society, December 9, were Dr. Herman O. Mosenthal, New York, on "Diet in Bright's Disease"; Dr. Carl F. Schmidt, "Respiratory Depressants and Respiratory Stimulants," and Charles H. LaWall, Pharm.D., "Cooperation Between Physician and Pharmacist."——Dr. Truman G. Schnabel delivered the postgraduate seminar, December 4, on "Anemias Simulating Pernicious Anemia."

## TEXAS

**Change in Subscription Representative.** — Mr. William M. Dickinson, Dallas, is no longer acting as representative for publications of the American Medical Association. Mr. Fletcher Lane, Waco, has succeeded him.

**Society News.**—Drs. Louis Daily, Houston, and Horace S. Renshaw addressed the Tarrant County Medical Society, Fort Worth, November 3, on "Value of Bronchoscopy in Diagnosis and Treatment" and "Boehler Treatment of Fractures," respectively.

## VIRGINIA

**Health at Richmond.**—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a population of 36 million, for the week ended November 28, indicate that the highest mortality rate (17.8) appears for Richmond and the rate for the group of cities as a whole, 10.5. The mortality rate for Richmond for the corresponding period last year was 10.8 and for the group of cities, 10.7. The annual rate for eighty-two cities for the forty-eight weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

## GENERAL

**Society News.**—Dr. Frank Smithies, Chicago, was elected president of the American Society of Tropical Medicine at its annual meeting in New Orleans, November 20, and Dr. Henry E. Meleney, Nashville, Tenn., secretary. The next annual session will be held with the Southern Medical Association in Birmingham, Nov. 18-20, 1932.——The annual conference of Eastern roentgenologists will be held, January 29-30, in New York. Societies that will participate include the New York Roentgen Society, New England Roentgen Society, Philadelphia Roentgen Ray Society, and the roentgenologists of Baltimore and Washington.

**Unauthorized Salesman Preys on Physicians.**—A man using the name G. A. Jennings is reported to be swindling physicians in several Southern states by posing as a representative of the Woolcraft Company, Grand Rapids, Mich., makers of men's clothing. The firm reports that he visits physicians exclusively and that the most recent complaints have come from Georgia. He carries expensive samples, and his story is that he is making a special introductory price to representative citizens to advertise the firm. He collects a deposit from the customer and disappears. The man is described as about 40 years old, slightly bald. He has red hair, a small red mustache and dark eyes and frequently wears dark rimmed glasses. His height is about 5 feet 8 inches and his weight between 150 and 160 pounds. Any physicians approached by G. A. Jennings are requested to wire the firm collect immediately. It is said that his operations have continued over a period of two years. The fact that he promises a future delivery of the goods gives him time to seek other fields before a complaint can be made.

**Eyestrain Among School Children.** — A comprehensive study of the strain on eyesight in school activities is being undertaken as a joint project of various departments of Columbia University and the National Society for the Prevention of Blindness. No time limit has been set for the completion of the work, nor is the scope of the problem being limited to fit a given group of workers, the report states. The plan is to carry the investigations over as long a period of time and into as many fields as is necessary. A study of the eyestrain of the school children from the ages of 5 to 10 years is now being carried on as the first step in the proposed work. The program of research will include the vision of the child, the lighting conditions under which he works, the materials he uses and the length of time he uses them. The announcement reports that plans have been completed for this research after a year of planning by Teachers College of Columbia University, staff members of the department of ophthalmology in the medical school, authorities in related fields within the university, and staff members of the National Society for the Prevention of Blindness.

**Association for Advancement of Science.**—Section N (the medical sciences) of the American Association for the Advancement of Science will meet, December 28-31, during the general meeting of the association at New Orleans. Subjects to be considered include "Parasitology of Medical Interest" at a joint meeting with the American Society of Parasitologists; "Effect of Drugs and Internal Conditions on Behavior"; symposiums on growth in joint sessions with the sections on anthropology and archaeology and on social and economic sciences; mental disorders, which will be discussed in two sessions, one with the section on psychology. Among numerous speakers announced are Dr. Abraham Myerson, Boston, on "Psychological Approach to Functional Nervous Conditions"; Dr. Gilbert J. Rich, New York, "Relationships Between Personality and Body Chemistry"; Richard E. Scammon, Ph.D., Minneapolis, growth of the individual; Dr. Frederick J. Cullen, U. S. Food and Drug Administration, "Fake Remedies Unearthed by the Pure Food and Drug Act." Dr. Howard T. Karsner, Cleveland, is vice president for the medical section.

**Hospital Association Opposes Increase in Federal Hospitals.**—A resolution opposing continuance or enlargement of the present legislative program of the federal government in the construction of veterans' hospitals has been sent to members of Congress by the American Protestant Hospital Association through its secretary, Frank C. English, D.D., Cincinnati. The protest points out that many general hospitals are burdened financially and need all local revenue. The association feels, therefore, that the plan to send veterans to distant cities and pay for their care, while their families are frequently thrown on local hospitals as charity patients, works a hardship on such hospitals, especially when half of their beds are often vacant. The trustees of the association believe that the government should provide hospitals for the permanently disabled and the tuberculous, cancerous and mental patients, but should consider carefully the question of having those who are temporarily sick and injured treated in civilian hospitals as more economical. It is believed that this can be done at a cost to the government less than what it costs to build and operate veterans' hospitals.

**News of Epidemics.**—Five thousand residents of Plattsburgh, N. Y., were vaccinated in November to check the spread of an epidemic of smallpox, which amounted to forty cases, November 13.——Whooping cough is reported to be widely prevalent in Illinois, with about 300 cases developing each week, more than twice the weekly average for 1930.——The county jail at Akron, Ohio, was quarantined in November after a prisoner became ill of diphtheria. Six other inmates were found to be carriers.——Public schools in Winchester, Ky., were closed when five cases of scarlet fever were found among the pupils, November 19.——An epidemic of typhoid in Buchanan County, Va., caused local authorities to appeal to the state board of health, November 28, for help in checking it. It was said that in some sections of the county there were families with from one to six members ill. Contamination of springs from which these people take their drinking water was thought to be the cause of the outbreak.——Several cases of typhoid in Wilmington, Del., were recently traced to the unauthorized collection of garbage by farmers who sold raw milk in the city. It was said that farmers removed garbage in violation of law from places where there were cases of typhoid and later dumped this contaminated material on their farms, where it was eaten by cattle or polluted the water they drank.

## CORRECTION

**"Focal Infection of Anal Origin."**—In the article by Dr. Louis J. Hirschman in THE JOURNAL, November 28, page 1609, the strength of the nupercaine solution advised for infiltration anesthesia should be 0.05 per cent instead of 0.5 per cent. The strength of the procaine solution mentioned is correct.

# Government Services

### Army Personals

Major George E. Hesner, relieved at Alcatraz, Calif., and ordered to duty in the Philippine Department; Capt. John P. Russell, San Francisco, for the convenience of the government, proceeded to his home about October 31 to await retirement; Major John M. Hewitt, having attained the age of 64 years, September 25, his retirement from active service by direction of the President is announced; Major Max R. Stockton, on completion of present tour of foreign service, is assigned to duty at the Army Medical Center, Washington, D. C.; Major George W. Reyer, assigned at Fort Bragg, N. C., effective on completion of present tour of foreign service in China; Capt. George P. Chase, relieved at San Francisco and assigned to duty in the Hawaiian Department; Major Clarence M. Reddig, relieved at Washington, D. C., and ordered to duty in the Panama Canal Department; Major William M. White, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Major Oscar T. Kirksey, relieved at Fort Banks, Massachusetts, and ordered to duty in the Philippine Department; Major Meredith R. Johnston, relieved at Panama Canal, C. Z., and ordered to duty at Letterman General Hospital, San Francisco; Capt. James H. Turner, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Capt. Silas B. Hays, relieved at Letterman General Hospital, Presidio of San Francisco, and assigned to duty in Honolulu; Col. Frank W. Weed, relieved at Boston, and assigned to duty in the Philippine Department; Major Peter D. MacNaughton, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, his retirement is announced; Capt. Paul Hayes, relieved at Fort Sheridan, Illinois, and ordered to duty in the Philippine Department.

### Changes in Veterans' Administration

The November *Medical Bulletin* of the Veterans' Administration notes the following recent changes in medical personnel, among others:

HOSPITALS

Dr. Leonard M. Brown, from Bronx, N. Y., to St. Cloud, Minn.
Dr. James H. Chapple, from Sheridan, Wyo., to Hines, Ill.
Dr. Compton N. Crook, from Tucson, Ariz., to Outwood, Ky.
Dr. Sherwood Dix, from Bronx, N. Y., to Northport, L. I.
Dr. James H. Dyer, from Lake City, Fla., to Muskogee, Okla.
Dr. William A. Jones, appointed at Palo Alto, Calif.
Dr. Samuel Luber, resigned at Lexington, Ky.
Dr. Willis E. Manney, detailed to Gulfport, Miss.
Dr. Emanuel Messinger, from Northport to Lyons, N. J.
Dr. Asa L. Myers, from Chillicothe, Ohio, to Washington, D. C.
Dr. Luther E. Nichols, from Outwood, Ky., to Tucson, Ariz.
Dr. Tracy C. Owens, permanently assigned at Chillicothe, Ohio.
Dr. Spiro Sargentich, from American Lake, Wash., to central office.
Dr. Frank R. Sedgley, from Minneapolis to Hines, Ill.
Dr. Ashby Steele, from Bedford, Mass., to Lexington.
Dr. Miguel Steinberg, from Bronx, N. Y., to Augusta, Ga.
Dr. Claude A. Thompson, from Muskogee, Okla., to Kansas City.
Dr. John A. Thurston, Jr., from Kansas City to Lake City, Fla.
Dr. Antonino Triolo, from Bronx to Northport.
Dr. Frederick L. Wright, from Palo Alto to American Lake.

REGIONAL OFFICES

Dr. Harold T. Allison, resigned at Scranton, Pa.
Dr. William J. Burdashaw, resigned at New York.
Dr. Samuel C. Kahlstrom, appointed at Cincinnati.
Dr. Frank M. Shafer, from National Military Home, Dayton, Ohio, to National Military Home, Hampton, Va.
Dr. Dana P. Stearns, appointed at Richmond, Va.
Dr. Ralph E. Stevens, resigned at Jacksonville, Fla.

### Change of Station in the Navy

Lieut. Comdr. William B. Hetfield from the U. S. S. *Medusa* to the marine corps base, San Diego, Calif.; Lieut. Cyrus C. Brown from the naval hospital, San Diego, to the U. S. S. *Rigel;* Lieut. Comdr. Herbert L. Shinn from the Garde de Haiti, Port au Prince, Haiti, to the navy yard, Washington, D. C.; Lieut. Walter G. Kilbury, from naval hospital, League Island, Philadelphia, to Nicaraguan National Guard Detachment; Lieut. George F. Blodgett from naval hospital, New York, to naval station, Tutuila, Samoa; Lieut. Walter L. Bach, from Guardia Nacional, Nicaragua, to recruiting ship, New York; the resignations of Lieuts. Eric D. Pearson and David M. Segrest have been accepted, effective November 5 and 21, respectively; Lieut. Clyde M. Longstreth's resignation has been accepted, effective February 28.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Nov. 14, 1931.

### The Increasing Importance of Blood Transfusion

In view of the increasing importance of blood transfusion, the Medical Research Council and the British Red Cross Society have appointed Dr. H. F. Brewer, senior demonstrator of pathology, St. Bartholomew's Hospital, as medical officer to the Blood Transfusion Service organized by the Red Cross. He will supervise the examination of transfusion volunteers and the collation of information on the effect of blood transfusion on donors, and he will carry out research into blood groupings, so that the service can keep abreast of the latest developments in surgery and hematology. Laboratory facilities are being provided by St. Bartholomew's Hospital. Since it was begun in 1921, the Red Cross Blood Transfusion Service has grown steadily. Last year, 1,627 transfusions were carried out, as against 1,333 in 1929. For the first nine months of this year, the number was 1,502. This rise is all the more significant when it is remembered that the success of the liver treatment of pernicious anemia has often obviated the necessity for successive transfusions. The membership of the service is now over 1,100, of whom about a fifth are women. More than a third of the members belong to the Rover Scouts, but almost every social service organization is represented on the service's list of volunteers. It was originally anticipated that a few hundred donors would be ample to meet the needs of all the London hospitals, but it is now found that at least 2,000 are required. The operation is neither painful nor in the least harmful to the donor, who frequently benefits by it. In most cases, if called on in the daytime, he returns to work within an hour. All expenses, including fares, telephone calls and time lost from work, are immediately refunded.

### Radium Treatment in the Municipal Hospitals

The importance and advancing standard of the London municipal hospitals, which are quite different from the voluntary hospitals, has been shown in previous letters to THE JOURNAL. The Central Public Health Committee of the London County Council, which now controls them all, has had under consideration the advisability of developing radium treatment. The conclusion reached is that it is now so available in the council's hospitals that no additional facilities are required for the present. The committee has decided that at the most important unit, the Lambeth Hospital, where the treatment of cancer by radium and low voltage roentgen rays is given, the medical officer should possess highly specialized knowledge and skill. His position will be designated "whole-time surgical specialist" and his salary will be $6,250, rising by increments to $7,500 a year.

### Psychiatric Clinics at the Municipal Hospitals

Increased attention is being given in this country to functional nervous diseases. The Maudsley Hospital in southeast London was endowed by the well known psychiatrist of that name and was organized by the London County council on the lines of the combined neurologic and psychiatric clinics of the continent and of America. It represented the first provision of the kind by a public body in this country. To increase accessibility of psychiatric diagnosis and treatment, the council has now established psychiatric clinics at each of the three municipal general hospitals north of the Thames: Mile End Hospital, St. Mary's, Islington, and St. Charles's Hospital, Hammersmith. The Maudsley Hospital has a complete staff

of eminent specialists in the various branches of medicine and surgery, and the three new clinics will be subordinate to it. The clinics will be supervised by the medical superintendent of the Maudsley Hospital, and the physicians in charge of them will be drawn from its staff. Patients can be referred to these clinics by their physicians. The condition of suitability is likelihood of fitness for further treatment at the Maudsley Hospital or elsewhere on a voluntary basis. Among suitable conditions are neurotic disturbances, such as neurasthenia, hysteria, obsessional and anxiety states, and mental or neurotic symptoms associated with physical disease. On the other hand, mentally defective patients, those clearly requiring certification and nonvolitional patients are excluded. After diagnosis at the clinics, patients will usually, owing to local exigencies of time and space, be referred for treatment at the Maudsley Hospital.

### The Financing of Irish Hospitals by Means of Sweepstakes

The work of financing Irish hospitals by money mostly drawn from England by means of sweepstakes goes merrily on. The third sweepstake of this year is about to be held, and there is little doubt that the fund will reach $10,000,000, of which a third will go to the hospitals. The reason of the great success is that such sweepstakes are illegal in England, and the prospect of large prizes, beginning at $150,000, proves especially attractive. The channel boats from England are crowded with visitors who want to obtain tickets for themselves and their friends. The British government has made ineffectual efforts, by refusing the use of the mails, when possible, and by prosecutions, to stop its subjects from taking part. Journalists from all parts of the world are attending the draw, for which special machinery is installed. Extensive rebuilding of hospitals has already been carried out by means of the proceeds.

### The Causes and Prevention of Suicide

At the meeting of the Medico-Legal Society, Dr. Dennis H. Geffen, health officer for Enfield, dealt with the problem of suicide. Its magnitude was shown by the fact that in England and Wales as many as 4,907 persons committed suicide in 1927 and 4,882 in 1928. In addition, probably twice the number attempted suicide but failed. These figures may be compared with the 3,000 women who lose their lives every year in childbirth. The usual verdict after an inquest in a case of suicide is "suicide during temporary insanity," but figures show that only one case in every five is due to definite insanity. What is the cause of the suicide in the 4,000 sane persons? Dr. Geffen finds that it is nearly always present trouble, not fear of the future. But he describes it as a "mentally infectious disease," because it is often due to following an example. The first signs of impending suicide are mental depression, and a threat of suicide should never be taken lightly. Availability of means is important, such as ease in obtaining firearms. The ready availability of coal gas is now a serious matter. Up to the age of 30 there is little difference in the suicide rates of men and of women, but later three times as many men as women commit suicide. The part played by the sex factor accounts for the equalization before 30. Race plays a part; in America the rate for the Negro population is lower than for the white. As to occupation, the highest rate is for those in the liquor trade, and then follow pharmacists, lawyers come third and physicians fourth. As stated by Hoffman in his book on the suicide problem, highly developed mentality and occupational strain may predispose to mental breakdown.

Dealing with prevention, Dr. Geffen could see no advantage in making suicide a criminal act. Our law should be amended in this respect, as has been done by the United States and by Italy. Returning to the power of suggestion, he thought that the press reports of cases of suicide and the methods had a bad effect on the minds of the mentally depressed. This was shown by fashions in suicide. Also, the theory that suicide is hereditary was attributed to the effects of suggestion caused by previous cases in the family. Recently a young lawyer seemed keenly interested in a discussion on methods of suicide. The Roman method of opening a vein in a hot bath was mentioned. A few days later he committed suicide in this manner. The difficulty of restoring to society a man who has attempted suicide is increased if his case has been broadcast in the press. He feels that he is a pariah, and he is ashamed to face the public. The ministry of health insists that notifications of infectious disease must be confidential. If suicide had been accepted as a public health problem, like infectious diseases, and treated in the same way, something would have been done for its prevention. A third method would be investigation of the mentality of those who attempt or commit suicide. Dr. Geffen finds that the former are only too anxious to talk to any one who interests himself in their problem. Cure of the would-be suicide depends on three factors: complete rest, suitable occupation, and reinstatement in his place in life. It would often be necessary to isolate him from his family and acquaintances. There should be a special court to investigate these cases, which should take the form of going into the patient's troubles in comfortable surroundings, and, if necessary, detention should follow in a special hospital, not in a prison.

### Improvement in the Health of the School Child

In his annual report on the health of the school child, Sir George H. Newman, principal medical officer to the ministry of health, says that school medical officers should conceive the primary object of medical inspection to be the answer to the question "Is this child developing according to the plan which nature has mapped out for him?" This is a difficult question, for it does not depend on averages of height, weight, alertness or mental attainment but on an estimate of the whole individual, who may be naturally short or tall, fat or lean, lethargic or alert, bright or stupid, and never intended by nature to be otherwise. What has to be determined is not whether he is below the average in any respect but whether he is below the standard which nature has set for him. To answer this, the medical officer must be able to visualize each child in a state of normal health and to estimate in what respect he falls short. The defect most frequently encountered in medical examination is related to vision; next come enlarged tonsils and adenoids, skin diseases and malnutrition. Only 1 per cent of the children now suffer from malnutrition. A great improvement has taken place. The better dress of the children is both a cause and an effect. No self-respecting school girl would now accept an accusation of uncleanliness without shame. There has been a revolution in cleanliness and dress, which has been conducive to health. The improvement in nutrition has been brought about partly by supplementary school feeding and partly by general care of the child at home and at school. When the school medical service began in 1907 there was approximately 10 per cent of malnutrition in the London schools. During 1930 in London, excluding special schools, 4,760,004 milk meals and 776,192 cod liver oil meals were given on the advice of physicians, the cost being recovered from the parents in non-necessitous cases.

#### MORE OPEN AIR AND SUNSHINE

The introduction of the open air school for debilitated children has been of great service but more sunlight and open air are required for every child, sick or well. The principles of the open air school must be applied to the normal child. Progress in this respect is shown by the fact that 80 per cent of the building plans submitted to the board of education include

proposals for throwing open to the outside air whole portions of class rooms and for admission of more sunlight than was formerly deemed necessary.

## PARIS

*(From Our Regular Correspondent)*

Nov. 4, 1931.

### The Congress of Pediatricians

The seventh Congrès des pédiatres de langue française was held recently in Strasbourg, under the chairmanship of Professor Rohmer. The first topic on the program was "Alimentary Fevers in Infants." Professor Schaeffer considered the various theories advanced in explanation of these fevers. He regards as the true cause the increase of the metabolism of substances that fix water, and more particularly the proteins. He maintains that there is no alimentary fever without absolute or relative dehydration. It is possible that, as a result of dehydration, there develops an action of poisons affecting the regulatory nerve centers. With a diet rich in albuminoids, such as dry milk, the combustion of proteins liberates less water than the combustion of carbohydrates. The heat produced is greater and is eliminated through perspiration, which creates a need for water. At the same time, these proteins leave a large quantity of urea, which requires a heavy dilution for its renal elimination. Dried human milk produces less harmful effects than skimmed and dried cow's milk because it furnishes fewer proteins. During the discussion that followed, Coréan and Vallette of Strasbourg expressed the view that in the mechanism of alimentary fever not only the excess of proteins but also the excess of sodium chloride played a part.

René Mathieu and Jean Chabrun considered in turn the various foods that may provoke fever in the infant: dry milk, buttermilk, condensed milk, ordinary milk whey, and sweetened dry milk.

The second topic concerned cerebral tumors in children. In a comprehensive paper presented by Mr. Heuyer and Mlle. Voigt, the clinical signs of such tumors were considered in detail: eye disorders, symptoms of paralysis or convulsions, modifications of tonus, headache, and changes of the cerebrospinal fluid. For the diagnosis, two signs are essential: choked disk and positive roentgenographic observations. The next step is to locate the tumor, which is often difficult in children and requires the use of ventriculography. The surgical treatment of these tumors was discussed by Clovis Vincent, David and Puech, who described their operative technic and the results secured by the surgical treatment of craniopharyngiomas (tumors developing from the remnant tissues of Rathke's pouch). An attempt should be made to extirpate the cystic pocket in toto, although that is often impossible. The statistics of their personal cases reveal a mortality of 25 per cent for this delicate operation.

The third topic, "The Concealed and Latent Types of Avitaminoses in Infants and the Causes of Their Appearance," was presented by Mr. Bertoye of Lyons. Among the causes he mentioned were defective diet, favorable terrane, the early age of the patient, and the activity of growth. Scurvy, beriberi, xerophthalmia and rickets never appear suddenly but are preceded by unobtrusive prodromal symptoms, which the speaker described with the greatest detail. He then reviewed the modes of treatment and the foods that may have deficient vitamins; also the medicaments (viosterol) and the physical agents (ultraviolet rays).

### An International Council of Scientific Societies

During the period immediately following the war, the scientists of the allied countries created an organization called Conseil international des recherches scientifiques, the seat of which was at Brussels. Under the chairmanship of Mr. Emile Picard, the council developed some activity, but, with the return of peace, it was impossible to maintain its exclusive character. It became transformed, and simultaneously with Mr. Picard's communication to the Academy of Sciences stating that fact, he resigned as the president. The new organization, which will be called "Conseil international des unions scientifiques," will constitute a federation of the numerous international societies that specialize in various researches. Its chief purpose will be to appoint joint commissions that will pave the way for understandings between the various countries with respect to researches of common interest. The president is Professor Hale, astronomer at the Mount Wilson observatory, California, and one of the two vice presidents is General Ferrié, member of the Academy of Sciences in Paris.

### Tubercle Bacilli in Tuberculous Pleural Effusions

Search for tubercle bacilli in pleural effusions has given heretofore such uncertain results that most microbiologists have become discouraged and have finally been inclined to admit that the fluid of these effusions exerts a lysing action on the bacillus. Karwacki, using ordinary culture mediums, succeeded in finding tubercle bacilli only three times, although he examined 33 liters of fluid. Schlossmann succeeded a little better by using the Petron method. Professor Bezançon, in collaboration with his assistant Mr. E. Buc, has recently solved the problem. He observed that the pleural fluid immediately modified its hydrogen ion concentration through loss of carbon dioxide. It is therefore necessary to acidify slightly the culture medium. The medium he uses is composed of distilled water, to which are added 2 per cent of peptone, 5 per cent of glycerin, and 1 per cent of monobasic potassium phosphate and sodium phosphate. Several tubes are filled with from 2 to 3 cm. in height and a few filaments of cotton are added. The contents are sterilized at a temperature of from 110 to 115 C., and an equal quantity of pleural fluid is added. The tubes are well stoppered and are kept in a bath at an exact temperature (between 37 and 38 C.). The colonies appear in from three to four weeks, either on the threads of cotton, which were added to serve as their support, or at the bottom of the tube. They increase in volume in the form of arborescent prolongations, especially in the more aerated region of the surface. The bacilli appear in countless numbers, and presenting their usual characters as to form, acidoresistance and inoculability in the guinea-pig. The positive results are virtually constant, especially if one considers the pleural exudates of artificial pneumothorax.

### Dr. Chompret Honored

The first university chair of stomatology was established in 1844, at the Faculty of Medicine in Budapest. In memory of Professor Arkovy, its most eminent occupant, from the scientific point of view, the Hungarian society of stomatology has created a gold medal to be awarded every three years, by an international committee, to the stomatologist adjudged the most eminent. The medal has just been awarded (for the first time) to Dr. Chompret, stomatologist to the Hôpitaux de Paris, at the Hôpital St. Louis, who will retire at the end of this year from active service. He was the founder and has remained the director of the principal dental school of Paris.

### Creation of a Hematologic Society

A new scientific society has been created in Paris: the Société d'hématologie. It numbers 250 charter members—French and foreign. Professor Hayem was chosen honorary president. Professor Chauffard was elected president; Professors Vaquez, Achard and Jolly, vice presidents; Dr. Chevallier, general secretary. The society will meet once a month in a conference room at the Hôpital de l'Hôtel-Dieu and will publish regularly scientific articles submitted by its members.

## BERLIN

*(From Our Regular Correspondent)*

Oct. 26, 1931.

### The German Pediatric Society

At the congress of the Deutsche Gesellschaft für Kinderheilkunde, held recently in Dresden, the Bonn pediatrician Goett discussed "The Physiology and Pathology of Sexuality in the Child." He surveyed the origin and development of the sex impulse in the child. Even in childhood there may be erotic exhibitions that cannot be entirely separated from sex consciousness. In abnormal paths of development, associations with a given emotion or a certain situation frequently assume an etiologic rôle. In most cases the prognosis of sexual disturbances in children is good. Aberrations of the sex impulse are frequently replaced after puberty by normal trends. Matters pertaining to home training are of especial importance in that connection.

Friedjung of Vienna, who has made a special study of the sexuality of the child, considers the manifestations from the standpoint of a follower of Freud. It is difficult to distinguish sharply between the normal and the abnormal in the life of the child. In connection with manifestations of budding sex impulse in the child, great caution must be exercised in the matter of ethical control. Great tact and a clear understanding of the situation are required in order to know when to impart information and what information to impart.

The second topic, "Active Immunization Against Diphtheria," constituted the high level of the session. According to the hygienist Bürger of Königsberg, the morbidity can be reduced by active immunizing measures to one fourth and possibly even to one tenth of the previous status. The case mortality cannot be influenced to any marked extent by the methods that are available. The duration of the immunity secured and its protective value in times of severe epidemics need to be investigated further. Legislative regulation of vaccination against diphtheria is not to be considered under present German conditions, and in the light of our present knowledge would be premature. The proper time for vaccination appears to be during a lull between outbreaks, since it requires months to develop immunity. Vaccination should be confined to young children (without reference to their susceptibility to toxins), to the toxin-sensitive children of the primary class in school, and to the care-taking personnel of the departments for infectious diseases.

Schick of New York reported on the extensive trials of vaccination against diphtheria carried out in the United States. He advised that Germany should hold fast to thoroughly proved procedures, and warned against drawing far-reaching conclusions from small series of observations. His statistics of diphtheria cases in the United States reveal, in the regions with active immunization, a marked reduction of the morbidity, after giving due allowance to the tendency toward spontaneous decline, such as is observed in various regions. Loss of immunity occurs occasionally. Children under 6 years of age are more difficult to immunize than older children. In infants favorable results have been secured with the Ramon anatoxin (toxoid). For older children, subneutralized toxin is commonly used. He showed how it was possible through an extensive campaign of publicity to carry out immunization against diphtheria in practically all the children of New York City.

Goebel of Halle reported observations in a home for infants. When using the antitoxin remedy put out by the Behringwerke, a triple inoculation was necessary to secure adequate protection, a double inoculation proving ineffective.

The central idea of the paper presented by Hottinger of Düsseldorf was the question as to why some persons inoculated do not acquire adequate immunity and wherein the nature of malignant diphtheria lies, in which the antitoxin has no sure effect. No essential progress in the treatment of these cases has previously been achieved. He thinks that a familial predisposition, together with certain peculiarities of the diphtheria bacilli and the association with other pathologic agents, plays a part in the origin of malignant diphtheria. Schlossmann emphasizes the probability that a change in the epidemiologic properties of the causative agents has come about. That malignant diphtheria is more prevalent than formerly cannot be questioned. The fact that the researches of Kolle and at the Behringwerke have revealed no changes in the toxin formation of the strains shows that the degree of toxin formation alone does not cause the malignant condition. He is opposed to the idea that the observations made thus far furnish satisfactory evidence for the success of active immunization.

Several speakers emphasized the worthlessness of the Löwenstein ointment. Reserved statements were made with regard to the practical value of the Schick test, since in many cases a correct idea of the defense forces cannot be obtained. In addition to the official topics, many different fields of pediatrics were treated in numerous independent communications.

### Care of Persons Who Are Hard of Hearing

In a time when the greatest economy must be exercised in all departments, it appears to be more important than usual to render needed aid to handicapped persons and to put them in such a condition that, in spite of their physical infirmities, they can support themselves. The welfare service for the benefit of deafmutes and persons hard of hearing has been gradually extended throughout the German *reich*. In 1871 there were 9.7 deafmutes for each 10,000 inhabitants; in 1900, 8.6, and in 1925-1926 there were 7.3. The last mentioned figure includes also those who are only deaf. The rural districts have the larger percentage of deafmutes. In about 10 per cent the disorder is congenital; in 21 per cent scarlet fever is the cause; in 10 per cent, spinal meningitis; in 19 per cent, suppurations of the middle ear, and in 11 per cent, accidents. The retrogression of deafmutism is doubtless to be sought in the energetic combating of infectious diseases and in the general progress of medicine. The welfare service in aid of deafmutes is based on the statistics concerning the deaf and dumb children who enter each year the group in which school attendance is compulsory. The school physicians examine every case that comes to their notice and make a report on a prescribed blank. The training and education of the deaf and dumb children who are found adapted to such instruction are given in the institutions for deafmutes, of which there are at present seventy-three in the German *reich*. These institutions belong to the various *länder* and the communes, or they are supported by societies or organizations, some connected with the churches and some of a lay character. The instruction, which is given by specially trained teachers, extends first to the spoken language, the articulate language replacing as far as possible the former sign language. The instruction includes all the branches that aid the pupil in becoming a useful citizen. In addition, the pupils receive a thorough industrial training in classes taught by specialists and artisans, who are given special awards in recognition of any marked skill shown by their pupils. At the present time, 20 per cent of the deafmutes in Germany and 7 per cent of those who are deprived of only their hearing are receiving institutional care. In addition to the private institutions for deafmutes, about forty German societies participate in the welfare work, which includes watching over the economic welfare of adult deafmutes. A self-help organization exists as the Reichsverband der Gehörlosen Deutschlands. The physical education of deafmutes is in the hands of the Reichsausschuss Deutscher Taubstummenverbände für Leibesübungen. Two thirds of the German deafmutes use the spoken language;

almost half of them use the written language, while less than one fourth make themselves understood with the aid of signs. The welfare service in aid of persons hard of hearing is of more recent origin. The state has established for their benefit several special schools and continuation schools. The instruction in these schools is given in accordance with the so-called *hörschmethode*, or a suitable combination of hearing and seeing. Recently a special service has been created with a view to protecting deafmutes and persons hard of hearing in court proceedings.

## BUCHAREST

*(From Our Regular Correspondent)*

Oct. 17, 1931.

### The New Law and the Adulteration of Food

Regulations in the new health law embrace all kinds of foodstuffs. The law forbids the sale or manufacture of decayed or harmful foods and beverages. Food articles must be named after the raw substance used in their manufacture, and this name must be used not only in advertisements, samples and invoices but also on the containers. It is strictly forbidden to use names which do not correspond with the true substance of the food or beverage.

Drinking water served in cafés and restaurants must be light, colorless, free from odor, and devoid of any by-taste. Its temperature must not exceed 15 C. (59 F.) in any part of the year. Besides this, it has to contain carbon dioxide. Soda water and lemonade factories can be established only with the authorization of the magistrate. Especial authorization is needed for making portable lemonade and other refreshing beverages. In the manufacture of lemonade, only well refined sugar may be used. Syrups made of sugar must consist of two parts of sugar and one part of boiled water.

Artificial mineral waters must contain the same constituents as the respective natural water: carbon dioxide may be added. Artificial mineral waters should be prepared only according to the formulas approved by the ministry of health. Only table mineral waters may be manufactured, while medicamentous, that is curative, waters must not be made artificially, excepting bitter waters.

For the cooling of foods and beverages, natural and artificial ice may be used. Artificial ice must be prepared from pure drinking water. Natural ice can be used for cooling only after a preliminary water analysis. Artificial ice may be in direct touch with the food articles, while, if natural ice is used, the articles have to be wrapped in some water-proof covering.

Milk can be sold only by licensed dealers. The license is issued by the veterinary section of the village magistrate's office to those who milk their own cows. Milk can be sold in aluminum or zinc containers.

As to yeast, only spirit or beer yeast can be sold to the public. The blending of the two kinds is prohibited. On the wrapper a label must be fixed, stating whether the product contains beer yeast or spirit yeast.

For preserving meat, the only method permissible is refrigeration. It is forbidden to sell the meat of sick animals or to use decayed vegetables for making preserves or for coloring them, or to use starch in their preparation. As to vinegar, the lowest acetic acid content allowed is 3, and the highest, 15 per cent. Vinegar essence must contain 80 per cent acetic acid.

Merchants unwittingly selling adulterated or impure foods or beverages are liable to a fine of from 1,000 to 3,000 lei, while those who sell such articles knowingly are fined from 2,000 to 10,000 lei. For a second offense the fine is doubled. If the adulteration was committed by one who brought the article into traffic, the fine is from 5,000 to 10,000 lei, and in case of a second offense it is double, with imprisonment from one to three months. In case adulterated or decayed or impure food articles cause death, a fine of from 10,000 to 50,000 lei is imposed, with imprisonment from one to three years, independently from the indemnity fixed by the civil court. Adulteration of milk involves a fine of from 2,000 to 5,000 lei.

According to the law, these regulations are enforced by the public health inspectors, the county physicians-in-chief, medical officers of cities and towns, and the chiefs of the state laboratories. The chiefs of custom houses are obliged to control all food articles imported from abroad and have to send samples for analysis to the laboratory of the ministry of health.

A special section of the law deals with the requirements in regard to cleanliness and hygiene in restaurants, cafés and all localities where foods are served. The agents of the public health office in towns and cities have to visit all such places twice a year. The new law is already in force.

### Bachelor and Spinster Tax in Rumania

In view of the great infant mortality rate and the great spread of the so-called social diseases, the Rumanian government felt impelled to draft a bill taxing all bachelors and spinsters. According to the first chapter of the law, the taxes to be paid by bachelors and spinsters will be turned over for the subsidizing of hospitals, dispensaries and other social institutes. The second chapter asserts that the terms bachelor and spinster apply to all single men and women between the ages of 30 and 65. Exemption is made in the case of clergymen, monks and those who are not permitted by the civilian law to marry. The tax is fairly low: up to 35, the annual fine is 200 lei ($1.22) up to 50, it is 500 lei ($3.05) and beyond 50, the fee is 300 lei ($1.83). The last chapter of the law deals with the fines to be imposed on those who want to evade the payment of these taxes under some false pretexts. An interesting item of this law is that in factories, warehouses and other establishments the employer is responsible for the notification of his bachelor and spinster employees.

### Trachoma in Rumania

In the prophylaxis and treatment of trachoma, the army did great service in prewar times. The examination of the eyes of recruits resulted in the discovery of trachoma cases. If a lad was found to have trachoma he was sent to a trachoma hospital, where he was kept as long as the condition was infectious. A physician experienced in the treatment of trachoma was sent to the district from which the lad came, and all the inhabitants there were examined. Those suffering from trachoma were sent to a hospital or, if this was impossible, put under treatment by the village doctor. If the number of trachoma patients in a district was too great, a trachoma specialist was entrusted with the treatment. The lads with trachoma were admitted into the army only after one year's absolute freedom from any symptoms of trachoma. In this manner, the number of trachoma cases was kept at a low level prior to the war. During war times, the invasion of foreign troops, the immigration of Russians, the annexation of Bessarabia, the return of war prisoners and the return of imperfectly healed soldiers from the field added much to the spread of trachoma.

In 1921, Dr. V. Cerkez examined all the children in an orphanage in Jassy and found that 47 per cent were trachomatous. In a school for girls in Jassy, 6 per cent of the children suffered from trachoma. In the outpatient department of the Jassy eye hospital, 580 trachoma patients were treated in 1928, 1929 and 1930, representing 3.5 per cent of all patients. Follicular conjunctivitis, though difficult to distinguish from trachoma, remains a well characterized and outlined pathologic entity; only 5 per cent of the follicular cases become in time trachomatous. In order to prevent relapses, complete cures must be insisted on: after an operation, the upper eyelid must not be turned up sooner than the eighth day. In respect to prophylaxis in Rumania, Cerkez urges the legislative carrying out of early

diagnosis, regular eye examination of school children and workmen, the erection of special trachoma hospitals and dispensaries, migratory dispensaries for the village folk, compulsory notification and treatment, eye examination of all immigrants and, finally, the organization of propaganda work.

### Prohibition of Advertising

The Medical Chamber of Rumania started activity some weeks ago, and its good work is already noticeable. While formerly the Bucharest daily papers were congested with the advertisements of venereal specialists, at present only some outsiders try to attract public attention by their obscene advertisements. The medical chamber is impotent, however, against the objectionable advertisements of some unscrupulous chemical manufacturers. These cause tremendous harm to the doctors because in the present critical financial circumstances even the intelligent classes are inclined toward self healing, evading consultation with the doctor and preferring to spend the money thus saved to buy an advertised cure. The medical association wants to appeal to the press syndicate, requesting nonprofessional papers to be more critical in accepting advertisements. At the same time the medical association will request its members who are in parliament to intercede in the chamber of deputies against the fraudulent advertising of worthless proprietary medicines.

## ITALY

*(From Our Regular Correspondent)*

Sept. 15, 1931.

### The Institute of Marine Biology

The Istituto italo-germanico di biologia marina was recently dedicated at Rovigno, Istria. The origin of the institute dates back to a zoological station established at Rovigno by Germany in 1891, and which, after the war, was turned over to the Comitato talassografico italiano. A recent agreement entered into by the governments of Italy and Germany provides that the institute shall be regarded as the joint property of the two countries, which will share equally the current expense of its administration and will have an equal number of persons on its staff. Professor Sella has been appointed codirector for Italy and Professor Stener for Germany. The institute has important collections of fish, mollusks and crustaceans, and there are rare specimens of Gambusia, starfish and polyps. Researches have been made on ocean depths, ocean currents and water pressure at various ocean depths.

### Meetings of Societies

The Società medico-chirurgica of Pavia met recently under the chairmanship of Professor Ferrata. Professor Viola reported the results of his research on contractility of the spleen. The author, using three different stimuli (the action of cold, muscular work, the action of epinephrine), observed attacks of fever of a malarial type produced in man. He attributed the attacks to contraction of the spleen, the physiologic importance of which he emphasized. Callerio reported certain details regarding several clinical cases of tumor of the biliary passages diagnosed during anatomic studies on cadavers, and called attention to the importance in such cases of determining the percentage of fat substances in the feces, for the localization of the lesions along the biliary passages. Bianchi and Callerio spoke on the influence of the bacteriophage on the hemolytic action of the typhoid bacillus. From their studies on 166 typhoid strains isolated from the blood of patients, the authors reached the following conclusions: 1. There is a large percentage of typhoid strains (about 1.8 per cent) that, from the time of their isolation, possess in varying degree an evident hemolytic action for the red corpuscles of sheep. 2. With the bacteriophage one can show those strains to be hemolytic that do not appear spontaneously as such. 3. The phenomenon of hemolysis that is demonstrable with the typhoid bacillus by means of the bacteriophage appears closely associated with the development of the bacteriophagic action itself on the micro-organism. 4. It is not always possible to demonstrate the presence of a bacteriophage in strains possessing the hemolytic property from the time of their isolation from the patient. 5. Under the conditions of bacterial lysis produced by the bacteriophage in the typhoid bacillus, the authors did not succeed in demonstrating the production of soluble hemolysins. 6. Concerning the interpretation of the phenomenon, the authors are inclined to hold that the bacteriophage does not confer on the micro-organism a property previously nonexistent, but that it strengthens or enhances a capacity that the typhoid bacillus possesses normally, although in only a moderate degree.

Bignami spoke on extrabulbar ulcer of the duodenum, describing the radiologic manifestations on the basis of his records of seven personal cases and the few contributions on the subject contained in the literature. He remarked that, as is the case with ulcer of the stomach and of the bulb, the radiologic picture presented in extrabulbar ulcer is rather uncertain. He stated that, also in the diagnosis of extrabulbar ulcer of the duodenum, absolute reliance can be placed only in the niche sign, whereas it is not usually advisable to ascribe to other manifestations more than secondary diagnostic value and to consider them noteworthy only when complete and in harmony with clinical data.

Pellegrini discussed tuberculosis of the mediastinal glands in the adult, describing cases of tuberculous adenopathy of the mediastinum with many caseous glands of the infantile type, without tuberculous localizations in other organs.

At Brescia there was held also a meeting of the Società medico-chirurgica, under the chairmanship of Professor Baratozzi. Professor Mazzardi described a case of metastatic ophthalmia, with special involvement of the cornea, in a subject with acute osteomyelitis of the femur, together with empyema. Fifteen days after the appearance of the osteomyelitis there began disturbances affecting the left eye, which led to its enucleation owing to the presence of panophthalmia. The bacteriologic and cultural examination of the exudate taken from the empyema and from the cornea revealed the presence of Staphylococcus pyogenes with like morphologic, cultural and staining characteristics. The speaker excluded exogenic keratitis, toxic keratitis and internal ulcer, and decided in favor of metastatic origin.

Pellegrini spoke on the seroprophylaxis and the serotherapy of purulent peritonitis. For the past year he has applied this method systematically in peritonitis resulting from appendicitis and from perforation of the digestive tract, making use of anticolibacillary serums combined with antigangrene serums. He cannot as yet give a final opinion, but he thinks that serotherapy has a favorable effect. Even though such simple treatment should have to be regarded as supplementary to operative treatment, it would still mark a step in advance.

Pellegrini, in speaking on modifications in the technic of appendicectomy, considered the lumbar incision, the formation of the "tobacco bag" before resecting the appendix, and resection with the electric knife. Certain variations that are advantageous only in special cases cannot be recommended as normal methods.

### Anophelism and Malaria in the Province of Novara

At a recent session of the Società di cultura medica novarese, Dr. Frongia spoke on the present status of anophelism and malaria in the province of Novara, describing the transformation of rice fields, the index of malaria, the density of anophelism and the classification of Anopheles, the resistance of Anopheles of the rice fields of Novara to malarial infection, and the transmission to Anopheles of malarial infection in man. The speaker concludes that the rice fields of the province of Novara have changed their character during the past twenty years, having been transformed by the rotation of crops and

more intensive cultivation. Malarial infection has gradually diminished and conditions today are much improved. The improvement cannot be ascribed to a diminution in the number of Anopheles, as these are present in great numbers in the rice regions of Novara. Of 100 specimens, 94 are Anopheles claviger or Anopheles maculipennis, 4 are Anopheles superpictus, and 2 are Anopheles pseudopictus. No specimens of Anopheles bifurcatus were found. Anophelism sine malaria may be ascribed, in all probability, to the fact that Anopheles of the rice fields, owing to some organic transformation, has lost to a great extent its susceptibility to malarial infection on being exposed to the malarigenic hematozoon through biting a person harboring that organism. Experimentally, it proved impossible to infect the mosquitoes of the Novara rice fields with malaria through contact with a malarial patient.

### A School for Ametropic Pupils

In Brescia there has been functioning for two years a special school for ametropic pupils, to which are admitted children, belonging to the second to fifth elementary grade, who are affected with serious myopia, hypermetropia, astigmatism, strabismus, or sequels of diseases of the anterior segment of the bulb or of the deep membranes, which reduce the vision to less than 3/10. The children supplied with glasses give immediate evidence of improved vision, applying themselves to their studies with less fatigue and greater profit, the vomiting spells, the headaches and the other disturbances produced by asthenopia being eliminated. On an average, visual acuity in the children supplied with lenses increased from 3/10 up to 7/10. Another advantage was the recovery from blepharoconjunctivitis due to defects of vision. A third advantage is the treatment of strabismus and of amblyopia ex anopsia by means of exercises. Increases of visual acuity amounting to 6/10 were observed.

### Dangers of Malaria Treatment of Dementia Paralytica

Addressing the Accademia delle scienze medico-chirurgiche of Naples, Professor Romano described the possible dangers associated with the treatment of degeneration of the neuraxis. The untoward effects that may arise are not to be ascribed solely to the reduced organic resistance of the patient or to an error in the choice of the strain of malaria but chiefly to a third cause more important than the two preceding. This consists in the fact that, as a result of inoculation with asexual malaria micro-organisms, with an incomplete biologic cycle and with a tendency to die or to be destroyed, malaria is not produced in the organism but a status malaricus. The toxemia induces in the organism already weakened disease symptoms that are not always foreseeable or controllable. In concluding, Professor Romano expressed the view that in a patient treated by malarialization there may develop a true toxinfection with a special type of septicemia. And since it is held that the mechanism of this therapeutic process is based on the action of febrile heat and on the destruction of neurotropic organisms, the speaker suggests that physical means be adopted for that purpose, as, for example, diathermy.

In the discussion following Professor Romano's paper, Professor Colucci pointed out that by attenuating the attacks of malaria with small doses of quinine, the dangers of malariotherapy are much lessened. He considered the attitude of Professor Romano pessimistic and remarked that the beneficent effects of malariotherapy do not lie solely in the elevation of temperature. Castronuovo held that by choosing carefully the strain of malaria to be inoculated one can always regulate the course of the malaria and check it when it appears desirable. Malariotherapy exerts furthermore a genuine immunizing biologic stimulus of value for direct defense against syphilitic spirochetosis. Seiuti considered malarialization the best method for the treatment of dementia paralytica provided it is applied early. But there are other methods that may prove efficacious, such as sulphotherapy and a combination of arsphenaminotherapy and reinjection of the patient's own spinal fluid. It is indispensable that pyretotherapy be followed by an energetic specific antisyphilitic treatment.

Professor Romano in reply reaffirmed his view that inoculation with atypical malaria during the incompleted asexual cycle (which he terms "wagnerism") is different from true malarialization, which must be the result of biologically perfect malarial inoculation. He contends that in some cases wagnerism may be more harmful than malarialization itself.

## MADRID

*(From Our Regular Correspondent)*

Nov. 6, 1931.

### Early References to the Circulation of the Blood

Dr. N. Mariscal recently lectured before the Academia Nacional de Medicina of Madrid on the history of medical discoveries, with especial reference to the share of the Spanish medical profession in the discovery of the circulation of the blood. The speaker made the following statements: In "De Trinitatis erroribus," the first book of Michael Servetus (Miguel Servede), which was published in Basel in 1531, there appears a description of the circulation. "Christianismi restitutio," written by the same author and published in 1553, is a compilation of his previous books. There is a popular belief that the books of Servetus were destroyed, only two copies of "Christianismi restitutio" being saved, one of which is in Vienna and the other, partly burned, in Paris. These are not the facts, however, since the Biblioteca Nacional of Madrid obtained from a Quaker several copies of his works, among which were two copies of "Christianismi restitutio" and one copy of "De Trinitatis erroribus." Matteo Realdo Colombo, Andrea Cesalpino, Carlo Ruini and Eustachius Rudius probably obtained their ideas on the circulation from Servetus. Baron Leibnitz gave Servetus (whom he termed "the famous anti-Trinitarian heretic doomed by Calvin in Geneva") credit for having been the discoverer of circulation. Andrés Laguna, in 1535, published in Paris his so-called anatomic method in which, while speaking of the contractions of the heart, he said: "This is a movement which is a property of the heart without any connection with the nervous system, since, if the nerves and the arteries originating in the brain are ligated, the systole and the dyastole continue." In 1542, Luis Lobera de Avila wrote: "The heart has two ventricles, right and left. In the right ventricle there enters a large vein (the vena cava), which brings the blood to the heart and originates a large vessel (the pulmonary artery), which carries the blood from the heart to the lungs. In the left ventricle there enters a large vessel (the pulmonary vein), which brings blood to the heart and originates a large artery (the aorta), which carries the blood all over the body." Francisco Matías Marti of Valencia, in 1616, twelve years before Harvey's book appeared, wrote thus: "The heart seems as if it were divided into right and left halves, to each of which an auricle and a ventricle, with alternate movements, correspond. The first movement of the heart originates in the right auricle, which, by means of a contraction, expels the blood which it receives from the vena cava to the right ventricle. The contraction of the ventricle, in turn, forces the blood to the pulmonary artery, from which it goes to the lungs, where it is subject to a process of purification while in contact with the air which is there by inspiration; and, once arterialized, it returns through the pulmonary vein to the left auricle, whence, through the contractions, first of the left auricle and then of the left ventricle, it is forced to the aorta, from which all the parts of the body are supplied through many branches. Then the blood returns through the veins again to the vena cava and to the right auricle in a revolving uninterrupted movement of the blood."

The second part of Dr. Mariscal's lecture was a study of the life of Servetus, which was characteristic of the beginning of the Renaissance. In that time of fanaticism, Servetus's theological writings were condemned. He published his books either under his own name or under the pseudonyms of "Villanobus" or "Serveto de Reves."

In view of the data given by Dr. Mariscal, the Spanish Republic made the home village of Servetus a town.

### Proposed Law for the Socialization of Medical Services

In several local political newspapers some of the most radical deputies have presented the following suggestion: "The undersigned deputies, having in mind the problems concerned with the high fees that are charged by physicians for attendance on the sick and for hospital attendance, in which problems are involved related to the conservation of the race, and having as grounds for their request article 42 of the Spanish constitution, suggest the following draft of a law: Article 1. All clinics, sanatoriums and hospitals should be socialized and considered as not having the right to charge any honorariums for attendance on the sick. While new laws for the national sanitation are being enacted, centers for the care of the sick, which at present are in active work, should continue under the regulations by which they have been functioning. Article 2. The practice of medicine and surgery and every one of its branches should be considered from a social point of view. Consequently, all physicians and surgeons should be considered as being public officers of the state. Their services, under proper regulations, should be regulated as follows: (*a*) In every city and town, a census of physicians and surgeons shall be made, noting their specialty if they specialize. The census will serve as a basis for a better distribution of social and public service from the medical profession. (*b*) Towns and cities, including their physicians and hospitals, will be divided into districts. Every physician should work in his district eight hours a day, during working days. Three hours of this time should be devoted to consultations in the physician's own office. The patients should be received in consecutive order. During the following five hours, physicians should attend patients unable to come to the office, who are either at home or in a hospital. Emergency calls should receive immediate attention, even if they are made outside working hours, and should be considered as of an extraordinary social value. Article 3. All physicians and surgeons will be paid by the government of the state. Their payment will represent a fixed amount equal to that given to state employees who receive the maximum payment in the town or city in which the physician lives and increased by a certain percentage for expenses of minors supported by him. Wives, who are considered equal to men and under their support, are not considered in that extra allowance. Article 4. Attendance given patients by physicians should be considered a service from state to community, the members of which, in order to pay for those services, should pay a double amount for their capitation fee. Article 5. On the date of publicity of this law, all obligations which hitherto were considered as imposing a duty on the patient to pay for medical or surgical attendance received, shall be abolished, and physicians shall be forbidden to receive any honorariums or charges representing a remuneration for services given to the patients. Article 6. In order to stimulate physicians to fulfil this social duty, every week the names of all physicians who during the week obtained a good record in their services will be read to the pupils in all the schools. Names of physicians who during the week gave extraordinary services will be placed on an honor roll list in the schools in order that their names may receive the homage of the social solidarity of their countrymen."

## Marriages

MICHAEL J. LORENZO, Bridgeport, Conn., to Miss Elenora Martha Brownell of Northville, N. Y., August 8.

FLORENTINE PETER HERMAN to Miss Lucille S. Williams, both of West Palm Beach, Fla., September 25.

CLARENCE C. HOLCOMB, Troy, N. Y., to Miss Marie V. Rogers of Washington, D. C., November 10.

ROLAND E. KALMBACH, Lansing, Mich., to DR. LYDIA L. LIGHTRING of East Lansing, September 12.

DONALD S. FRASER of Panama City, Fla., to Miss Margaret Van Cleve of Lynn Haven, October 8.

KENNETH J. KEMP, Columbus, Ohio, to Miss Katherine C. Daniels of New York, November 27.

HARRY A. SCHWARTZ, Long Island, N. Y., to Miss Sylvia Marcus of Brooklyn, November 1.

JAMES F. CURRY, Dunnellon, Fla., to Miss Neva Williams at Inverness, August 1.

BERNARD FRAZIN to Miss Beatrice Minnie Hurwich, both of Chicago, October 1.

LUTHER H. KELLEY, Atlanta, Ga., to Miss Louise Curtis, November 13.

## Deaths

**Walter Henry Robilliard,** Faribault, Minn.; Hahnemann Medical College and Hospital, Chicago, 1884; an affiliate Fellow of the American Medical Association; member of the Radiological Society of North America; past president of the Rice County Medical Society; for ten years member of the board of education; on the staffs of the State School for the Deaf and St. Lucas Deaconess Hospital; aged 70; died, November 1, of pneumonia.

**William F. Mitchell,** Shelby, N. C.; University of Maryland School of Medicine, Baltimore, 1889; member of the Medical Society of the State of North Carolina; past president and secretary of the Cleveland County Medical Society; formerly member of the county board of health; on the staff of the Shelby Hospital; aged 63; died, October 27, of cerebral hemorrhage.

**Joseph Clark Stephenson** ⊕ New Orleans; Rush Medical College, Chicago, 1925; member of the Oklahoma State Medical Association; professor of anatomy, Louisiana State University Medical Center; formerly professor of anatomy, University of Oklahoma School of Medicine; aged 45; died, November 10, of spinal meningitis.

**Benjamin B. Wheeler** ⊕ Charleston, W. Va.; Louisville (Ky.) Medical College, 1904; member of the American College of Surgeons; formerly superintendent of the McKendree (W. Va.) Hospital and on the staff of King's Daughters General Hospital, Beckley; aged 55; died, November 3, of carcinoma of the stomach.

**Charles Vincent Hart** ⊕ Major, M.C., U. S. Army; Jefferson Medical College of Philadelphia, 1903; served during the World War; entered the Medical Corps of the U. S. Army in 1920 as a first lieutenant and was made a major in 1930; aged 54; was killed, July 16, in an airplane accident.

**Roland H. Stubbs,** Waterford, N. Y.; Medical Department of the University of the City of New York, 1877; member of the Medical Society of the State of New York; for many years health officer of Waterford; aged 76; died, November 17, in the Leonard Hospital, Troy, of arteriosclerosis.

**Charles Henry Harvey,** Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; member of the American College of Surgeons; formerly surgeon to the West Philadelphia Homeopathic and Belmont hospitals; aged 63; died, November 12, of bronchopneumonia.

**Sidney Stewart Pugh,** Mobile, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1889; member of the Medical Association of the State of Alabama; veteran of the Spanish-American War; aged 68; died, October 12, in New Orleans, of cerebral hemorrhage.

**Charles Andrew Graham** ⊕ Denver; University of Pennsylvania School of Medicine, Philadelphia, 1898; formerly associate professor of medicine, Denver and Gross College of Medicine; aged 60; died, October 22, in St. Luke's Hospital, of acute hemorrhagic nephritis.

**Leonard Johnathan Hensler,** Carrollton, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1908; member of the Illinois State Medical Society; served during the World War; aged 46; died, November 7, in St. Anthony's Hospital, St. Louis, of agranulocytosis.

**Benjamin C. Logan** ✠ Morrilton, Ark.; Louisville (Ky.) Medical College, 1902; past president and secretary of the Logan County Medical Society; formerly county and city health officer; on the staff of St. Anthony's Hospital; aged 56; died, October 31, of heart block.

**Reuben Nathaniel Palmer** ✠ Kenyon, Minn.; University of Minnesota Medical School, Minneapolis, 1926; formerly secretary of the Houston-Fillmore Counties Medical Society; served during the World War; aged 38; died, November 3, of heart disease.

**James P. Tucker,** Galveston, Texas; Texas Medical College and Hospital, Galveston, 1878; University of Louisville (Ky.) School of Medicine, 1885; aged 78; died, October 25, in the John Sealy Hospital, of acute pyelonephritis, cystitis and arteriosclerosis.

**Cornelius H. Myers,** South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1877; member of the Indiana State Medical Association; aged 79; died, October 31, in the Epworth Hospital, of injuries received when he was struck by an automobile.

**John Newton Killough,** Birmingham, Ala.; Kentucky School of Medicine, Louisville, 1887; member of the Medical Association of the State of Alabama; visiting physician to the Alabama Boys' Industrial School; aged 66; died, November 2, of carcinoma.

**George W. Steward,** Jerusalem, Ohio (licensed, Ohio, 1896); president of the Monroe County Medical Society; formerly member of the state legislature and member of the county board of health; aged 83; died, in November, of cerebral hemorrhage.

**Robert Adoniram Segrest,** Port Gibson, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Mississippi State Medical Association; aged 51; died, October 31, in the Jackson (Miss.) Hospital, of carcinoma of the right lung.

**William Albert Galloway,** Xenia, Ohio; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; on the staff of the Ohio Soldiers and Sailors Orphans Home; aged 71; died, November 7, of heart disease.

**Columbus C. Black,** Austin, Texas; Missouri Medical College, St. Louis, 1882; member of the State Medical Association of Texas; aged 75; died, August 28, in a local hospital, of hypostatic pneumonia, arteriosclerosis and chronic myocarditis.

**John Emison Pack,** Georgetown, Ky.; Bellevue Hospital Medical College, New York, 1873; formerly mayor of Georgetown, member of the state legislature, and the county board of health; aged 82; died, October 30, of cerebral hemorrhage.

**Thomas Nathaniel Jackson, Jr.,** Athens, Ga.; Boston University School of Medicine, 1924; on the staffs of the Athens General Hospital and St. Mary's Hospital; aged 34; died, November 8, of myocarditis and pulmonary tuberculosis.

**Harry Allan Spangler** ✠ Carlisle, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; served during the World War; aged 65; on the staff of the Carlisle Hospital, where he died, November 5, of cerebral hemorrhage.

**Samuel L. Rucker,** Moneta, Va.; University College of Medicine, Richmond, 1897; member of the Medical Society of Virginia; aged 60; died, October 4, in the Jefferson Hospital, Roanoke, of perforated gastric ileus and peritonitis.

**Robert James Gillespie,** Salyersville, Ky.; University of Louisville School of Medicine, 1912; director of the health department of Magoffin County; aged 43; died, November 2, in the Paintsville (Ky.) Hospital, of pneumonia.

**George Wesley Kester** ✠ Grand Junction, Iowa; Drake University Medical Department, Des Moines, 1895; past president of the Greene County Medical Society; member of the school board; aged 62; died, November 4.

**Charles Westlake Hoare,** Windsor, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1888; formerly mayor of Walkerville and member of the board of education; aged 68; died, November 10.

**Peter Harry Harmann,** St. Louis; St. Louis College of Physicians and Surgeons, 1898; Barnes Medical College, St. Louis, 1900; aged 55; died, November 8, in the Missouri Baptist Hospital, of carcinoma of the liver.

**Philip R. Cleaver** ✠ Johnstown, Pa.; Medico-Chirurgical College of Philadelphia, 1890; aged 64; on the staff of the Mercy Hospital, where he died, November 5, of embolism, following an operation for gallstones.

**Amos F. Hamman** ✠ Long Beach, Calif.; Rush Medical College, Chicago, 1903; served during the World War; on the staff of the Seaside Hospital; aged 57; died, October 28, in Chattanooga, Tenn., of heart disease.

**Charles Levin** ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1905; on the staff of the Beth David Hospital; aged 53; died, November 8, of chronic valvular heart disease.

**David Young,** Winnipeg, Manit., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1871; superintendent of the Manitoba Mental Hospital, Selkirk, 1886-1912; aged 84; died, October 16.

**John T. Davis,** Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1872; member of the Ohio State Medical Association; aged 83; died, November 10, in the Bethesda Hospital, of edema of the lungs.

**William George Edward Flanders,** Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1888; aged 65; died, November 4, of arteriosclerosis, chronic nephritis and diabetes mellitus.

**William D. Wheless,** San Antonio, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1900; on the staff of the San Antonio State Hospital; aged 58; died, November 1.

**Timothy O'Brien,** Wahpeton, N. D.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1884; member of the North Dakota State Medical Association; aged 69; died, November 7.

**Anthony J. Berresheim,** Louisville, Ky.; Kentucky School of Medicine, Louisville, 1906; member of the Kentucky State Medical Association; aged 50; died, November 19, of encephalitis.

**Daniel D. Murray** ✠ Duluth, Minn.; Albany (N. Y.) Medical College, 1881; formerly city health commissioner; aged 72; died, November 6, of coronary thrombosis and arteriosclerosis.

**George Frederic Hunter Bartlett,** Buffalo; University of Buffalo School of Medicine, 1883; aged 75; died, November 8, of carcinoma of the esophagus, arteriosclerosis and arthritis deformans.

**John S. Bentley,** St. John, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; for many years on the staff of St. John General Hospital; aged 53; died recently.

**Edwin Putnam Gleason,** Brockton, Mass.; Harvard University Medical School, Boston, 1892; aged 65; died, November 9, in the Brockton Hospital, of hypertension and heart disease.

**James D. Scott,** Holdenville, Okla.; Missouri Medical College, St. Louis, 1897; member of the Oklahoma State Medical Association; aged 59; died, October 31, of diabetes mellitus.

**Frederick Roberts,** Lake City, Ark.; University of Tennessee Medical Department, Nashville, 1907; aged 62; died, October 17, in Brookland, of chronic nephritis and paralysis.

**Max Mayo Miller** ✠ Arkansas City, Kan.; Northwestern University Medical School, Chicago, 1918; on the staff of the Mercy Hospital; aged 41; died, November 6, of heart disease.

**George Neves,** Colony, Okla.; Tulane University of Louisiana Medical Department, New Orleans, 1912; aged 49; died, July 16, in Thibodaux, La., of a self-inflicted bullet wound.

**Allen Judd Nossaman** ✠ Pagosa Springs, Colo.; Keokuk (Iowa) Medical College, 1892; aged 64; died, October 9, in the Colorado General Hospital, Denver, of lymphosarcoma.

**Benjamin William Dudley,** Short Hills, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 53; died, October 26, of cirrhosis of the liver.

**Gilbert James White,** Evanston, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 74; died, November 12, in Picton, Ont., Canada, of myocarditis.

**Terence Edward Darnelle,** Detroit; Medical College of Indiana, Indianapolis, 1892; served during the World War; aged 62; died, November 4, in the Receiving Hospital.

**Duncan A. Macdonald,** Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1907; on the staff of the Deer Lodge Hospital, St. James; aged 50; died, October 6.

**Edwin Fancher,** Middletown, N. Y.; Boston University School of Medicine, 1883; member of the Medical Society of the State of New York; aged 71; died, November 22.

**Samson George Goode,** Sidney, Ohio; Medical Department of the University of the City of New York, 1887; formerly justice of the peace; aged 86; died, October 23.

**Maurice Mitchell Hallum,** Carrollton, Ga.; Atlanta Medical College, 1898; for ten years member of the school board; aged 63; died, October 19, of cerebral hemorrhage.

**William Stanton Winter,** Port Arthur, Texas; Kansas Medical College, Topeka, 1898; member of the State Medical Association of Texas; aged 70; died, September 2.

**Walter Ralph Stovall,** Dallas, Texas; University of Louisiana Medical Department, New Orleans, 1878; aged 78; died, November 8, of carbuncle and heart disease.

**Calvin M. Arnold,** Harrisburg, Pa.; Homeopathic Medical College of the State of New York, 1867; also a druggist; aged 88; died, November 12, of cerebral hemorrhage.

**Mary M. Kroetz,** San Francisco; Hahnemann Hospital College of San Francisco, 1894; aged 74; died suddenly, October 28, of angina pectoris and arteriosclerosis.

**George Washington Koenig** ✠ St. Louis; Washington University School of Medicine, St. Louis, 1904; aged 59; died, November 7, of a self-inflicted bullet wound.

**George William Wood** ✠ Rockledge, Fla.; Georgetown University School of Medicine, Washington, D. C., 1894; aged 68; died, November 9, of morphine poisoning.

**Daniel Shelley Solliday,** Hillsboro, Va.; Medical College of Virginia, Richmond, 1900; member of the Medical Society of Virginia; aged 68; died, November 4.

**Maxwell S. Simpson,** Titusville, N. J.; Jefferson Medical College of Philadelphia, 1883; aged 75; died, November 12, in the Mercer Hospital, of heart disease.

**L. Guy Ramaley,** Oklahoma City, Okla.; Joplin College of Physicians and Surgeons, Joplin, Mo., 1882; aged 74; died, October 20, of carcinoma of the liver.

**Amos Sheldon Edwards** ✠ Syracuse, N. Y.; Syracuse University College of Physicians and Surgeons, 1874; aged 89; died, November 6, of heart disease.

**Herman C. Vetterling,** San Jose, Calif.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 83; died, September 5, of chronic myocarditis.

**Lewis Edward Pearce,** Houston, Texas; Marion-Sims College of Medicine, St. Louis, 1896; aged 76; died, October 10, of bacteremia and septicemia.

**Albert E. Kumpf,** Hot Springs, S. D.; University of Minnesota Medical School, Minneapolis, 1928; aged 30; died, in October, of cerebral hemorrhage.

**Joseph Xavier Ryan,** Chicago; Loyola University School of Medicine, Chicago, 1924; aged 31; died, November 23, at the Mercy Hospital, of tetanus.

**Fletcher Marcellus Barnes** ✠ El Paso, Texas; Southwestern University Medical College, Dallas, 1911; aged 54; died, August 19, of pneumonia.

**Henry Stine Weigle,** Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1908; aged 45; died, October 4, of diabetes mellitis.

**Louis A. Russlow,** Randolph, Vt.; Baltimore Medical College, 1894; member of the Vermont State Medical Society; aged 65; died, September 21.

**Rosa Douglas Wiss,** Meridian, Miss.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; aged 63; died, September 14, of myxedema.

**Clarence Hudson Richardson,** Brooklyn; Harvard University Medical School, Boston, 1912; aged 53; died, November 11, of lobar pneumonia.

**George Henry Litsinger** ✠ Topeka, Kan.; University Medical College of Kansas City, 1900; aged 61; died, November 3, of agranulocytosis.

**Herman A. Burkhart,** Bethlehem, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1893; aged 69; died, July 27, of pneumonia.

**Isaac Newton Devine,** Groveton, Texas; Atlanta Medical College, 1880; aged 78; died, October 20, in Houston, of carcinoma of the rectum.

**Fredric W. Haudenschield,** Stewart, Ohio; Louisville (Ky.) Medical College, 1891; aged 73; died, November 12, in a hospital at Marietta.

**Marion S. McCormick,** Martinsville, Ind.; Medical College of Ohio, Cincinnati, 1882; aged 72; died, November 6, of cerebral hemorrhage.

**John Selden Brandt,** Ontario Center, N. Y.; Bellevue Hospital Medical College, New York, 1878; aged 76; died, September 20.

**Harvey H. Bellwood,** Long Beach, Calif.; Rush Medical College, Chicago, 1887; aged 83; died, October 23, of cerebral hemorrhage.

# *Bureau of Investigation*

## THE VON WALDENS

### The Interesting Professional History of Rudolph von Walden and Some of His Family

"Professor" Rudolph von Walden is distinctly up-stage. He has presence; he has poise; he has a distinguished appearance even when he is photographed ("mugged") by the police. His sartorial elegance befits the millionaire that he is reported to be. His gray and luxuriant whiskers, parted meticulously in the median line, must in themselves be an asset of no mean worth. "Professor" von Walden is not and never has been a professor in any reputable institution of learning; he is not a physician; he is not licensed to practice medicine in any state in the Union. He has not, apparently, even the dubious honor of belonging to the chiropractic, osteopathic, naturopathic, seventh-son-of-seventh-son, or any of the other fifty-seven varieties of cults, that infest the American scene. Yet, newspapers have reported that it has been estimated that in his business of treating human ailments, he takes in between $6,000 and $10,000 weekly and has a personal fortune of between $500,000 and $1,000,000!

Rudolph von Walden is reported to have been born in Germany nearly 70 years ago and to have come to the United States in 1884. For some years he played up the "von" part

Business with the von Waldens is not what it used to be. A few years ago Rudolph was carrying full-page advertisements in metropolitan dailies; today the small display and even the classified advertisement columns must perforce suffice.

of his patronymic. Then, the late unpleasantness made "vons" an advertising liability rather than an asset and Rudolph von Walden became R. V. Walden. He dubs himself a "scientist"; he used to admit that he was a "German scientist." There have been a number of "Walden Institutes" in different parts of the country. One of the first—if not the first—was the "R. von Walden Institute" of Cincinnati, said to be "Devoted to Diseases of the Heart, Angina Pectoris, Dropsy, Etc." Since that time, there have been Walden Institutes operated from New Haven and Hartford, Conn., New York City (various addresses), Atlanta, Ga., and St. Albans, Long Island.

Rudolph von Walden has an interesting family. The newspaper files prove it. There is, for example, Gerald Walden, who for a time conducted a Walden Institute at Hartford, Conn., in connection with his father. Then, the papers reported that Gerald had sued his own father for alienating the affections of his (Gerald's) wife. Another son is Sherman von Walden, chiropractor. He, apparently, is in his father's good graces and conducts an "institute" at Atlanta, Ga. When Sherman was studying (!) chiropractic at Davenport, Iowa, he too figured in the press reports—and law courts—in a disgraceful case that, because it has no medical significance, need not be detailed here. A third son, Edward, variously described by the newspapers as the "Metropole Bandit" and the "Flappers' Friend," has distinguished himself in other fields of human activity, that of ordinary robbery.

Other members of von Walden's family that have figured in the newspapers are his wife and two daughters. All three are reported, at different times, as having been arrested for breaches of the peace, while, according to the daily press, Mrs. von Walden has, in addition, been sentenced to jail (execution suspended) for contempt of court. In March of this year (1931), it was reported that Mrs. von Walden, in her suit against Rudolph for alleged failure to pay $12,000 in back alimony, had charged that her husband had transferred some valuable property by warranty deed to two individuals who, in turn, executed a mortgage on the property to one "Charles F. Roberts." Mrs. von Walden is said to have declared that "Charles F. Roberts" is merely an alias adopted by Rudolph von Walden for the purpose of removing the mortgage from the possibility of attachment. In June, 1931, the papers reported that von Walden had entered into a stipulation to pay his former wife $10,500.

### "PROFESSOR" RUDOLPH VON WALDEN

So much for the satellites in the von Walden group. The first newspaper record that we have of the elder von Walden's quackery was published in May, 1916. From it one learns that Rudolph was found guilty of practicing medicine without

The R. Von Walden Institute
DEVOTED TO DISEASES OF THE
Heart, Angina Pectoris, Dropsy, etc.
SEVENTH FLOOR MITCHELL BUILDING
Cincinnati, O.
THE WALDEN INSTITUTE
DEVOTED TO THE RELIEF OF DISEASES OF THE
HEART, ANGINA PECTORIS, CARDIAC ASTHMA
HARDENING OF ARTERIES
HIGH BLOOD PRESSURE, PARALYSIS, ETC.
SUITE 407 PLYMOUTH BUILDING
183 COURT STREET, NEW HAVEN, CONNECTICUT
R. V. WALDEN, DIRECTOR
The Walden Institute
DEVOTED TO THE RELIEF OF COMPLAINTS OF THE
R. V. WALDEN
Director
HEART, ANGINA PECTORIS, CARDIAC ASTHMA
HARDENING OF THE ARTERIES, HIGH BLOOD PRESSURE
PARALYSIS, NERVOUS SYSTEM, DIGESTION, KIDNEYS, ETC.
WITHOUT THE USE OF
DRUGS, MEDICINES, SERUMS, OR OPERATIONS
Industrial Office Bldg.
NEWARK, N. J.
OFFICE OF
DR. SHERMAN VON WALDEN
SPECIALIST
ATLANTA GEORGIA
November 7th, 1928.

Some von Walden letterheads (greatly reduced). At the top as used in 1914 in Cincinnati; the New Haven, Conn., letterhead, vintage of 1922; the Newark, N. J., office in 1928 and Sherman's letterhead also in 1928.

a license at Portsmouth, Ohio, fined $300 and costs, and given a suspended sentence of a year. According to an article that was published in the *Ohio State Medical Journal,* it seems that in December, 1916, Rudolph von Walden went to Portsmouth to attend one Charles Fenstermaker, whose condition Portsmouth physicians had pronounced hopeless. Mr. Fenstermaker died shortly after von Walden had collected $250 from his family. The same medical journal also reported that some time following this episode, full-page advertisements appeared in the *Cosmopolitan* and the *Woman's Home Companion* and a number of southern newspapers, announcing the alleged therapeutic miracles that von Walden's "system" would accomplish.

In January, 1917, Alabama papers reported that Rudolph von Walden had been arrested in Mobile on the charge of practicing medicine without a license. We have no record of the outcome of this case.

Von Walden's activities were given some further publicity in the October, 1917, issue of the *Journal of the Tennessee State Medical Association,* which published a letter from two reputable physicians recording the case of a Mr. J. W. Kerr, a brother-in-law of one of the physicians. The letter stated that Mr. Kerr, who had had organic heart disease for many years, fell into the hands of Rudolph von Walden, at the time this quack was operating his Cincinnati "institute." Von Walden charged Mr. Kerr $500 in advance and kept him in Cincinnati long enough for the check to go through the clearing house. What von Walden did to Mr. Kerr is not known, but when he sent Mr. Kerr home, he telegraphed to Mrs. Kerr to meet her husband at the train, as he was "not very well." When Mr. Kerr was met at the train by Mrs. Kerr and his family physician, he was unconscious and died three hours later. The physician who was brother-in-law to Mr. Kerr threatened von Walden with legal action if the $500 was not returned to Mrs. Kerr. It was returned.

In March, 1921, Florida papers reported that Rudolph von Walden had been arrested in St. Petersburg. Here, again, von Walden apparently escaped fine or imprisonment, as we find no record of it. In January, 1924, newspapers reported that Rudolph von Walden had been arrested by the Richmond (Va.) police on the charge of practicing medicine without a license. At the same time, the police department of Richmond wrote to the Bureau of Investigation of the American Medical Association for such data as the Bureau had on von Walden. These, of course, were sent. Von Walden was reported held on two charges—that of practicing medicine without a license and that of having illegally in his possession three quarts of whiskey. The Richmond police are reported to have said, at the time, that von Walden evidently had some "influence behind him in the state of Georgia as while in jail [in Richmond] he called some town in Georgia and asked his bankers there to wire to a bank in Richmond, asking them to honor his check for $1,000, which was given to some local attorneys" and that "the Georgia bank immediately wired this information and the check was honored." When von Walden's case was called, the quack was dismissed! According to the newspaper reports, no evidence was produced to show that he practiced medicine and—most delicious of all—the "professor" was able to convince the court that the three quarts of whiskey found in his possession were "being used in connection with his professional work."

In 1930, Rudolph von Walden made a tactical error. He went to Hartford, Conn., to ply his trade, and Hartford has a Better Business Bureau with a live personnel. After prescribing a course of medical treatment for an investigator for the Hartford Better Business Bureau, Rudolph von Walden was arrested on a charge of violating the state healing arts law. On June 3, 1930, von Walden was fined $200 and costs for violation of the state medical practice act. While von Walden gave notice of appeal it was a bluff. He paid the fine and costs.

### HOW RUDOLPH WORKS

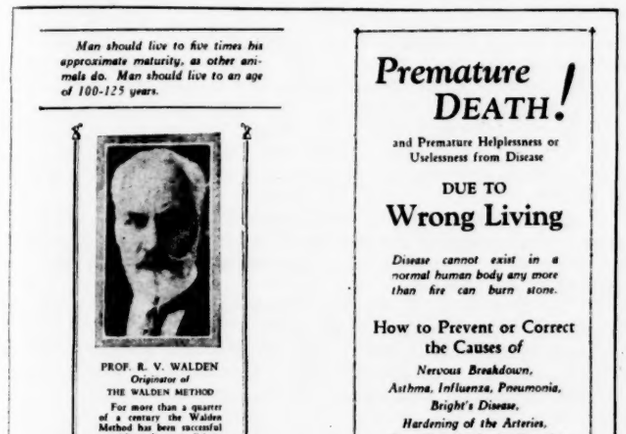
Von Walden's *modus operandi* has been, in the past, to publish expensive advertisements, many of them occupying full pages of such newspapers as cater to such sources of advertising revenue. Those who wrote to von Walden in answer to the advertisements, received plausible come-on letters with "consultation blanks" common to mail-order quackery. The prospective victim was urged to fill out the blank and return it to von Walden, who would, upon its receipt, send "a written analysis of your symptoms" free of all expense. Von Walden's diagnoses, or as he would call them "analyses," were surprisingly uniform. They smelled of the rubber-stamp. Practically all those that we have seen read:

> "I find upon examination that the origin of your symptoms is in your abdominal organs; your stomach, your liver, your intestines, and also your abdominal circulation. These must be corrected first, before you can get rid of your symptoms."

Curiously enough, this same stock diagnosis—*verbatim et literatim*—is also used by Sherman von Walden. Sherman, it will be remembered, is operating at present from Atlanta, Ga. In 1927, the Atlanta concern was known as the "Walden Institute of Vital Dietetics" with R. von Walden, "Director," and "Dr. Sherman von Walden, Consultee." Later, stationery carried the name "Dr. Sherman von Walden, Specialist in Heart and Arterial Diseases, Suite 310 Mortgage Guaranty Building, Atlanta, Ga."

Rudolph von Walden has, at least on one occasion, used the stool-pigeon method of advertising. Sufferers from "heart

trouble, dropsy, high blood pressure, paralysis," etc., were urged to write to Mrs. A. Spence at Gadsden, Ala., who offered to tell those who wrote her how her "dear mother was cured without drugs and her life saved." Mrs. Spence added that she felt that this was her "duty to humanity." Those who wrote to Mrs. Spence received a letter on the stationery of the Globe Realty and Auction Company, who were described on the same stationery as "Rental and Insurance Agents, Farm and Mineral Lands, Large Tracts for Subdivision, Water Power and Manufacturing Sites." This was said to be located in "Rooms Over the Cross Drug Store" on Broad Street. Investigation brought the report that no such company existed or ever had existed, except on paper. Furthermore, Mr. Cross, who operated the drug store and owned the building in which it was located, wrote that he had no knowledge of the Globe Realty and Auction Company, and that the company did not occupy any room above his store, nor had he ever rented a room to it. When Mrs. Spence's attention was called to the use of the stationery, she is said to have replied that she was only using it to economize, as they had it on hand and it was not being used. As different specimens that we have in our


Man should live to five times his approximate maturity, as other animals do. Man should live to an age of 100-125 years.
PROF. R. V. WALDEN
Originator of
THE WALDEN METHOD
For more than a quarter of a century the Walden Method has been successful —without drugs, medicines, serums or operations—in the prompt and permanent relief of thousands of desperate sufferers who had failed to obtain help from any other source.
CAUSE—and CORRECTION
There is but ONE cause of ALL disease.
Its name is Malnutrition, which leaves your vital forces under-nourished while it supplies surplus wastes which ferment or putrefy and generate gases and acid poisons. In these wastes EVERY disease has its origin. The nature of a waste and the part of your body at which it attacks define the disease and give it a name.
There is but ONE correction, therefore.
Its name is Intelligent Nutrition, which builds where greater strength is needed in your body and which avoids the surplus wastes. This is a highly specialized science, based on Common Sense, developed by long experience, and proved by consistent success against tremendous difficulties. Its other name is The Walden Method.
Premature DEATH!
and Premature Helplessness or Uselessness from Disease
DUE TO
Wrong Living
Disease cannot exist in a normal human body any more than fire can burn stone.
How to Prevent or Correct the Causes of
Nervous Breakdown, Asthma, Influenza, Pneumonia, Bright's Disease, Hardening of the Arteries, Heart Trouble, Angina Pectoris, High Blood Pressure, Paralysis
BY THE
Walden Method
WITHOUT DRUGS
WALDEN INSTITUTE
935 Broad St.
NEW HAVEN, CONN.
SOUTHEASTERN OFFICE:
Suite 1202-03 Trade Exchange Bldg.
ATLANTA, GA.
Broad Blde
N. Y.

Greatly reduced reproduction of part of a piece of von Walden ballyhoo which in the original measured about 15 inches by 17 inches. Note that, according to von Walden, all disease is caused by malnutrition. There is but one cure: "The Walden Method."

files show that the stationery of the nonexistent Globe Realty and Auction Company had been printed at least two different times and with two different styles of type, the "economy" is not obvious.

### THE FEDERAL TRADE COMMISSION TAKES A HAND

Quackery of the von Walden type is hard to reach under any but state law, and the lukewarm attitude of state prosecuting attorneys in cases involving fakers who liberally patronize local newspapers is notorious. Von Walden and his ilk cannot be reached under the postal fraud order, because the mails are used only in making the "contact," the remainder of the transaction, together with the payment of money, being personal. The national Food and Drugs Act cannot be invoked, as von Walden sells no drugs in interstate commerce. The prohibition laws seem equally helpless, when a man without medical training or license can claim to use whiskey for "professional" purposes—and get away with it. The only federal agency left is the Federal Trade Commission that has done so much good work in throwing the fear of the law into medical fakers who have otherwise considered themselves above the law.

Early this year, the Federal Trade Commission served a complaint on Sherman von Walden, in connection with his exploitation of the so-called Walden Method evolved by Sherman von Walden's father, Rudolph. After stating that Sherman van Walden was selling the alleged von Walden Method "at prices ranging from $65 to $500, payable in advance," the Commission brings out the fact that the diagnoses made by Walden and the diets and exercises prescribed by him were made, in the majority of instances, without Walden's ever seeing the patient. The Commission then lists the following "false, misleading and exaggerated statements and representations" made by Sherman von Walden in the advertising matter and literature that he sent to customers and prospective customers:

"PARAGRAPH TWO: (A) That the Walden Method is a proper and successful method of treating the diseases and ailments known as

| | |
|---|---|
| High blood pressure | Bright's disease |
| Angina pectoris | Kidney trouble |
| Heart attacks | Kidney stones |
| Hardening of arteries | Inflammation of kidneys |
| Paralysis | Bronchial asthma |
| Threatened fatal paralysis | Bronchitis |
| Arteriosclerosis | Cardiac asthma |
| Enlargement of heart | Asthma |
| Valvular heart trouble | Catarrh |
| Asthmatic heart | Pains in chest |
| Fatty heart | Nerve exhaustion |
| Symptoms of high blood pressure | Symptoms which lead to pneumonia |
| Heart symptoms | Influenza |
| Pains in heart | Fainting spells |
| Heart pounding | Falling spells |
| Dizziness | Choking spells |
| Pains in head | Uremic poisoning |
| Shortness of breath | Colic |
| Smothering spells | |

"(B)—(1) That respondent is a doctor of medicine; (2) That respondent is a 'specialist' in the treatment of diseases; (3) That respondent is a 'specialist' in the treatment of heart and arterial diseases; (4) That the Walden Method will cure diseases heretofore regarded by the medical profession as incurable; (5) That respondent makes a thorough, efficient and correct diagnosis of diseases without personal, or any, examination; (6) That proper treatment can be and is prescribed for all diseases, under the Walden Method; (7) That the Walden Method is scientific and was discovered by the great German scientist, Prof. R. von Walden; (8) That the Walden Method cures through modern scientific methods; (9) That The Walden Method is and was promulgated by the greatest living authority; (10) That nothing else equals the Walden Method; (11) That the Walden Method is the one sure method in existence for treating diseases; (12) That the Walden Method has relieved thousands of patients in the last 35 years; (13) That 95 per cent of the fatal heart diseases can be cured by the Walden Method; (14) That respondent maintains an Institute of Dietetics in connection with his said business, at said City of Atlanta.

"(C) Purports to reproduce testimonials from various persons who claim to have been cured of diseases or ailments by the Walden Method, from some of which alleged testimonials the following excerpts are quoted: (1) 'Suffered for years. Relieved in 72 hours. (Angina Pectoris.)' (2) 'Relief only through hypodermic; now restored without drugs. (Angina Pectoris.)' (3) 'Had only one year to live, relieved in 24 hours. (Angina Pectoris.)' (4) 'A remarkable restoration of a case of paralysis, without drugs and medicines, caused by High Blood Pressure.' (5) 'Physician relieved of facial paralysis, high blood pressure, Bright's disease, Within Sixty Days, Without Drugs.'"

The Commission's complaint then continues:

"1.—In truth and in fact, R. von Walden . . . has never taken a prescribed course in medicine, nor has he received a diploma from a medical school, nor has he been licensed to practice medicine in any State of the Union, nor is he a scientific man in any respect, nor has he ever been a professor of a college or other institution of learning.

"2.—The respondent, Sherman von Walden, has never been a physician or surgeon, nor has he ever received a college degree or any degree except as a chiropractor. He is not a specialist in dietary, he is in no sense a scientific man, and is not qualified to properly treat by diet, exercises, and rest routine, or either, any of the diseases or ailments mentioned in Paragraph Two hereof.

"3.—The Walden Method will not cure nor will it aid in the cure of the diseases and ailments mentioned in Paragraph Two hereof.

"4.—The Walden Method is unscientific and does not cure diseases or human ailments through modern scientific methods, nor does it cure or aid in the cure thereof at all.

"5.—The Walden Method was not promulgated by the greatest living authority, or by any authority, living or dead.

"6.—The Walden Method is not a proper or sure method of treating the diseases and ailments mentioned in Paragraph Two hereof, or any other diseases or ailments.

"7.—The Walden Method has not relieved thousands, or any, patients of their ailments or diseases.

"8.—Ninety-five per cent, or any per cent of fatal heart disease has not been cured or relieved by the Walden Method.

"9.—The Walden Method is not the only sure method of curing or aiding in the cure of the diseases or ailments mentioned in Paragraph Two hereof, nor is it a sure method at all.

"10.—Correct and accurate diagnoses of said ailments or diseases of the human body cannot be made by the methods employed by respondent.

"11.—Many of the purported testimonials referred to in subdivision (c) of Paragraph Two hereof are false and misleading, many were never given and many were induced by purchase and such purchase not disclosed to persons reading the same.

"12.—The diagnoses attempted by the respondent are not within the range of this respondent's methods, skill or information.

"13.—The use of the abbreviation for 'Doctor,' 'Dr.,' as applied to the name of the respondent in the advertising and sale of the 'Walden Method,' as aforesaid, holds out to the public that respondent is a doctor of medicine, when such is not the fact."

Hearings have not yet been held on this case. They will be awaited with interest by those who seek to protect the public from quackery.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### DIFFERENTIAL DIAGNOSIS OF INTESTINAL WORMS

*To the Editor:*—I should be pleased to have your assistance in identifying an intestinal worm discovered in the stool of a girl, aged 18 months. The previous history is negative. The child is greatly emaciated, feeble and fretful; the appetite is fair; the digestion, except during brief dentition, has been good. The present illness began nearly three months ago, the chief symptoms being progressive loss of weight and strength, increasing anemia, constant fretting and crying for hours and hours. Slight fever is present most of the time. Urinalysis gives negative results; the hemoglobin is 60 per cent, the stool is well digested but contains many small islands of mucus. The first microscopic examination disclosed ova comparable to hookworm. The first dose of castor oil given after a course of chenopodium oil caused disappearance of these ova. None have appeared since. In the first specimen and in all subsequent stools examined, numerous worms have been seen which when magnified 70 diameters appear much like the male hookworm by naked eye; that is, straight or slightly curved, sharp at one end but clubbed at the other. The worms are striated transversely (ringed) for their entire length. They are not visible to the naked eye. Motion has not been observed. The food has been milk, eggs and cereal. No fruit substances such as peach fuzz have been ingested. Slight improvement in the child's condition followed an anthelmintic, but the stool still teems with these apparent worms. Please omit name.

M.D., Oklahoma.

ANSWER.—There is a question here as to a parasite really being present. It is difficult to diagnose the genera of worms by a written report. The problem of recognition of the parasite (?) present here would be simplified if one knew the residence of this child and also had available a differential blood count, showing the eosinophil percentage. Pathologic intestinal parasites, which by excretion of toxin (?) or by tissue invasion are producing lesions, commonly cause alterations from the normal differential leukocyte formula; the anomaly usually is eosinophilia. With 60 per cent hemoglobin, this child's red cells might be expected to present abnormalities.

Many of the signs and symptoms presented clinically by this child could be ascribed to a dietetic deficiency. Certainly, for an 18 month old girl a diet comprised wholly of milk, eggs and cereal is unbalanced in vitamins. It would be of importance to know what has been the diet prior to the one named. In a previous diet, the "ova" and "worms" described might well be vegetable hairs, fruit fibers or molds. It is difficult to recognize ova or worms accurately after the administration of castor oil; a saline cathartic delivers stools which may be readily examined both macroscopically and microscopically.

If the offending parasite here were hookworm, it is difficult to explain how ova were seen but once, whereas, on all occasions, the stool was rich in "worms." Hookworm-filled stools usually exhibit ova and worms simultaneously, at least at some examinations. Also, it is rare to find stools "teeming with hookworms" without observing mobility in many, especially if warm freshly passed stools are studied on a warmed microscope stage. The inquirer is ambiguous: are the worms invisible to the unaided eye, or is it the striations? Since hookworms vary in length from one-third to one-half inch, it is possible, if the stool is stirred on a black surface, to see them with the unaided eye. Ancylostoma is even longer than hookworm (Necator americanus). Striation is not seen microscopically. The pointed part of the female and the umbrella-like copulatory bursa of the male are characteristics readily identified under the medium powered lens.

The pinworm (Enterobius vermicularis) may be confused with hookworm. It can be seen macroscopically, squirming on fecal masses, since it is approximately half an inch long. Since eggs are deposited as the worm wanders, anal and perineal anal irritation is common and should be looked for, particularly at night. Scratching infects the fingers, produces surface body lesions, and spreads the infestation. The worm is actively motile and not transversely striated.

The roundworm (Ascaris lumbricoides), from one-half to one-fourth inch long and slightly pinkish, is transversely striated but has not a clubbed end as described by the correspondent. Infestation may occur through hogs or through those who come into contact with them and carry the slowly maturing eggs. Constitutional upsets may be severe, because the worm migrates extensively (through the liver, lungs, trachea or appendix). The knobbed ovoid eggs should not readily be confused with the rounded, four-segmented eggs of hookworm. The parasite is motile.

From the foregoing summary it would seem that, of the common worms infesting the alimentary tract of human beings, the correspondent is dealing with a roundworm (Ascaris lumbricoides) or an artefact.

In the circumstances, further observations should be made on foreign substance present in the stool.

Treatment should include a vitamin balanced, adequate ration. "On suspicion," a course or two of thymol may be tried after the patient has been on a fat-free diet for three days.

### PREGNANCY IN DOUBLE UTERUS

*To the Editor:*—Please advise the wisest course to pursue in the following case: One of my patients, a primipara, who is three months pregnant, has a "uterus duplex." The vagina is also divided by a septum. The uterus on the right side is the one pregnant. Shall I let her go to term? Will there not be too much interference at term by the other uterus and the vaginal septum? The husband and wife do not want a cesarean operation performed. The pelvic measurements are normal. The literature available regarding this seems to be scarce. Please omit name.

M.D., Ohio.

ANSWER.—Uterus didelphys, or double uterus, consists of two distinct uteri, usually of different sizes, each with a separate cervix which communicates with the vagina. In most instances, as in the case cited, the vagina is also double. A review of the literature reveals that, in more than a fourth of all the cases, pregnancy is interrupted before the child is viable. The cause of this may be abnormal implantation of the ovum due to the uterine malformation or the malformation itself. In addition to the abortions that occur, labor takes place prematurely in an additional 10 per cent of the cases. Only about 60 per cent of all the patients with uterus didelphys carry their pregnancies to term. Of those who go to term, about 70 per cent are delivered normally, whereas the remainder have complications. This means that only about 40 per cent of all women with a pregnancy in a double uterus have normal deliveries. The most common factors that produce dystocia are the enlarged, nonpregnant half of the uterus, the vaginal septum when present, uterine inertia, tetanic contraction of the uterus, and retention of the placenta in the uterus. Breech presentation is frequently observed. Complications such as postpartum hemorrhage, hematometra and subinvolution occur more frequently in the presence of these malformations than in normal cases.

Since the majority of patients who go to term deliver spontaneously, the treatment of a case of pregnancy in a uterus didelphys should be conservative. An effort should be made to prevent abortion or premature labor. Repeated examinations should be made from time to time, but with great gentleness, to detect a beginning incarceration of the nonpregnant uterus. If symptoms of incarceration arise, treatment should be instituted early. When the patient goes into labor, she should be

watched closely. Operative intervention is necessary only when abnormal symptoms present themselves. Even if the patient delivers spontaneously she must be carefully guarded during the puerperium. Excellent articles on this subject are those by N. F. Miller (*Am. J. Obst. & Gynec.* **4**:398 [Oct.] 1922) and Palmer Findley (*Am. J. Obst. & Gynec.* **12**:318 [Sept.] 1926).

## USE OF IRON CITRATES IN SECONDARY ANEMIA

*To the Editor:*—What are the relative merits of ferric citrate and of iron and ammonium citrate in secondary anemia? What is the maximum dosage of each preparation? What is the extent of solubility in water or in other solvents? Please indicate method of prescribing these preparations. What is the toxicity, if any?

A. M. LOES, M.D., Dubuque, Iowa.

ANSWER.—Ferric citrate is not as soluble as iron and ammonium citrate, but it is more permanent in the air. Hence, the former would be more suitable for prescribing in powder form and the latter for solution. A dose of 1 Gm. is ordinarily not exceeded. Toxicity is slight. Extremely large doses might produce local irritation.

Iron and ammonium citrate is soluble in less than its own weight of water. It is insoluble in alcohol. The following prescription might be suggested:

| | Gm. or Cc. |
|---|---|
| Iron and ammonium citrate | 10 |
| Syrup of orange | 60 |
| Chloroform water to make | 120 |

M. Label: Teaspoonful in water three times daily after meals.

A tablespoonful dose of this preparation should not be excessive.

## FRÖHLICH'S SYNDROME OR DYSTROPHIA ADIPOSOGENITALIS

*To the Editor:*—Mrs. M. G., aged 28, whose family history is irrelevant, has been married five years and has not become pregnant. Menstruation began at the age of 13 and there were only one or two menstrual flows each year up to the age of 20. From then until the present time there have been three or four menstrual flows each year, lasting from one to three weeks, occasionally accompanied by griping pains in the uterus. Sometimes the flow is light or bright red; again it is dark. At times there are clots of various sizes; again there are no clots. The last menstrual flow began June 15 and lasted periodically until August 1. The flow returned from two to five days in a gush, which the napkin could not contain. During this period the whole abdomen was sore and tender from a misstep or from an automobile ride. Between periods the abdomen is full and distended; this condition is relieved by the flow. The patient is 5 feet 4 inches (162.6 cm.) in height and weighs 160 pounds (72.6 Kg.), with some tendency to obesity. The patient desires to correct the condition and become pregnant, if possible. With many consultations there has been no satisfactory result. About one year ago a small polypus was removed, without results. Please omit name. M.D., Indiana.

ANSWER.—The history suggests a case of Fröhlich's syndrome, dystrophia adiposogenitalis, although an obstruction of the cervical canal is a possibility, and a dilator should be passed to rule out this complication. Fröhlich's syndrome is characterized by scanty and irregular menstruation, dysmenorrhea, and a tendency to adiposity with atypical deposition of masses of fat. Troubles of this nature are due to disturbed function of the endocrine system, notably the pituitary gland. The patient should have a determination of the basal metabolic rate. Roentgen examination of the sella turcica and a blood calcium determination might also be helpful. The treatment is unsatisfactory, although rapid strides are being made in the therapy of such conditions. An adiposity diet, outdoor life, and the administration of thyroid extract or pituitary gland substance, or the more recently advocated specific hormones may be helpful.

## COMPARATIVE CALCIUM AND PHOSPHORUS VALUES OF FOODS

*To the Editor:*—Knowing the discriminating care that is employed in the acceptance of advertisements for THE JOURNAL, I was somewhat surprised to find the comparison that was published on the outside advertising page (page 62) of the issue for October 17. This contains a comparison of a proprietary cereal product with other cereals, and likewise with whole milk and eggs. A casual inspection of the figures might lead one to assume that milk (notably an excellent source of calcium and phosphorus) is comparatively deficient in these elements, when contrasted with the new proprietary product. Is this not misleading and likely to tend to curtail the use of milk, which has begun to play a large rôle in all the programs for child welfare? M.D., Connecticut.

ANSWER.—Our correspondent points out several features of the comparison that might easily be misleading. For example, the cereal referred to is recorded as having calcium, 0.78 per cent, in contrast with milk, 0.12 per cent; similarly the cereal phosphorus is given as 0.62 per cent, in contrast with 0.09 per cent in milk. The fallacy in this comparison lies in the fact that, whereas milk contains 87 per cent of water, the cereal in question has only 7 per cent of moisture. If the solids of the cereal and those of whole milk were compared, the relative value of milk would at once become conspicuous.

A quart of milk contains approximately 1.2 Gm. of calcium and 0.9 Gm. of phosphorus. It would require more than 150 Gm. (5 ounces) of the cereal in question to supply the equivalent of that amount of milk in the two elements referred to. The same comment may be made with reference to the comparison of the cereal with milk, in respect to the relative content of vitamin G. Obviously milk is normally consumed in far larger quantities than is the case for any cereal. The advertising comparison also contrasts the proprietary cereal, yielding 109 calories per ounce, with milk yielding 20 calories per ounce. In practice, however, a quart of milk will yield more than 600 calories, the equivalent of at least 6 ounces of the cereal.

## SURGICAL DRAINAGE OF FELON

*To the Editor:*—Is it now good surgical practice merely to lance a felon of four or five days' standing with one short incision, one-fourth or three-eighths inch long, as though it were a boil? Please omit name. M.D., Michigan.

ANSWER.—Because of the peculiar attachment of the skin on the tips of the fingers to the periosteum, spreading infection from a felon will extend downward and not laterally. This explains why there is no fluctuation until late, although the entire finger tip is usually swollen.

The old practice of an incision over the abscess, similar to that of lancing a felon, is to be condemned. This is not good surgical practice, because it may produce an incision which is longer than necessary for superficial abscesses; because a short incision will not drain and because any incision will leave a bad scar over the most important tactile area of the body.

The treatment for all felons is immediate drainage, preferably under regional anesthesia at the base of the finger with procaine. If the abscess is superficial and the area can be localized, it is good practice to place a sharp knife almost flat against the abscess area and cut off the top of the rounded swelling, thus opening up the abscess cavity. The removal of a certain amount of skin from around the cavity by this method will prevent its closing too soon, and will drain it better than a vertical incision.

In the felons which have gone on to deeper involvement, as evidenced by general swelling of the fingertip and severe pain, one must drain a wider area. Unless the felon is located directly at the tip of the finger beneath the nail, one should always preserve this area and not cut through it with the knife. If it must be cut, it should be cut parallel to the nail and circularly around the finger in the shape of a horseshoe.

In the ordinary felon near the middle of the tip, one should make two incisions—one along either side—and then undercut, parallel to the bone, across the abscess cavity. If necessary, the whole pad of the finger except the tip near the nail may be separated for adequate drainage. A soft rubber tissue drain is pulled through from one incision to the other and left in until the drainage has lessened.

## HYPERSENSITIVENESS TO DIPHTHERIA TOXOID

*To the Editor:*—Having read the answer to the question concerning hypersensitiveness to toxoid in Queries and Minor Notes (THE JOURNAL, October 10, p. 1095), I would take the liberty of raising a question regarding the impression which the average reader may receive. The answer to Dr. Robbins' question states that "the control test, as carried out in the Schick procedure, serves as an indication of susceptibility to proteins in the toxin solution and may be used as a substitute for the injection of dilute toxoid solution in determining susceptibility of individuals to protein in the toxoid solution." As the reply to the question states, "Diphtheria toxin and toxoid are not the same substance and individuals do not react to the two in the same manner." Therefore, I believe that advice conveying the impression that Schick test control material may be used as a substitute for the dilute toxoid is true only to a limited extent and that this statement should be corrected. Diphtheria toxoid, representing the detoxified diphtheria toxin, is diluted 1: 20 when prepared as reaction test material. Schick test control material is diluted the same as Schick test toxin of any given lot, which is approximately a 1: 300 dilution. WALTER E. KING, M.D., Detroit.

ANSWER.—It is true that the Schick test control material is not identical with that of the diluted diphtheria toxoid used as a test for protein susceptibility. The impression intended to be conveyed was that the Schick test control serves as a guide to susceptibility to the proteins in the toxin solution and so, to a certain extent, may also be used as a guide to susceptibility to the proteins in the diphtheria toxoid solution.

### ELECTROCARDIOGRAPHIC TRACINGS WITH PATIENT UNDER ANESTHESIA

*To the Editor:*—I should appreciate any information you may have available concerning the danger or safety of the taking of electrocardiographic tracings while the patient is under anesthesia, especially ethylene and oxygen.

JAMES F. ALISON, M.D., Selma, Ala.

ANSWER.—It is inconceivable that any dangerous situation might arise from taking an electrocardiographic tracing while the patient is under anesthesia, whether with nitrous oxide-oxygen, ether, or ethylene-oxygen. Even if a small portable electrocardiograph were taken into the room itself, there would be no danger. Some of the older types of machines throw a spark when the circuit is closed. In that case, of course, the machine is to be left in the hall, only the leads being allowed in the room.

### OXYGEN TENTS

*To the Editor:*—Will you please give your impression as to the type of oxygen tent which is giving the best results in the market today? We anticipate the purchase of a tent in the near future and want advice.

M.D., Wisconsin

ANSWER.—There are several makes of oxygen tents that are sufficiently satisfactory for use under most conditions. The main requirements of an oxygen tent are that it should be large enough, at least 3 feet in each direction, that it should hold oxygen well enough so that from 50 to 60 per cent of oxygen can be maintained in it, and that the cooling device and circulation of the atmosphere of the tent should be adequate to keep the temperature at 70 F. Most of the tents that can be purchased will satisfy all these requirements in the winter time, but on hot summer days the temperature and humidity inside the tent cannot be properly controlled except with a few makes of oxygen tents. The patient's comfort, well being and progress toward recovery are dependent not only on the maintenance of a sufficient amount of oxygen in the tent but also on the control of the temperature and humidity in the tent. The temperature and humidity control has not been recognized sufficiently by most manufacturers. The following are well known tents: Barach-Davidson; Cecil-Plummer; Oxygenaire; Barach-Roth.

### DIFFERENTIATING WHITE AND COLORED CHILD

*To the Editor:*—I have had an unusual case of a white girl giving birth to a male child which is apparently a Negro. I wish you would give me all the information you can in regard to differentiating between a white and a colored child born of a white mother. Kindly list the characteristics from a physical examination and also whatever laboratory means I can use to form a definite conclusion.

J. MARSH FRERE, M.D., Chattanooga, Tenn.

ANSWER.—For the purpose of differentiating between a white and a Negro child, skin color is the only reliable guide. Furthermore, in a Negro child the hair will be dark and may be woolly but need not be so in white-Negro crosses. The eyes will be dark brown. The shape of the head is entirely unreliable, since both long and short heads occur in a white and a (mixed) Negro population. Laboratory tests will not be of much assistance when nothing is known regarding the paternity.

Heredity studies have revealed the fact that dark skin color is generally dominant over light color, although exceptions have been observed (but not for crosses between Negroes and whites). There are cases known in the literature in which two individuals with light coloring had dark-skinned offspring.

When the father is suspected to be either one of, say, two or three individuals, anthropologic measurements and an examination of the blood groups of all concerned may lead to a definite conclusion.

### GANGLION OF WRIST

*To the Editor:*—I request some information in reference to the treatment of the so-called ganglions that occur frequently about the wrist. In cases which have not subsided with firm bandaging, it has been my custom to perform excision. I have had very good results from this treatment. However, there seem to persist rumors of the method of hitting these swellings with a heavy book to cause bursting of them subcutaneously. I have been unable to find this treatment recommended in any authoritative textbook, or to find any surgeon of standing who would admit using it. Will you inform me whether this method of treatment is really standard and satisfactory?

E. C. MCCULLOCH, M.D., Staten Island, N. Y.

ANSWER.—So-called ganglions may disappear following a severe blow, but this form of treatment is not good practice. The subsidence following a blow probably results from the rupture of the wall, with absorption. Since a certain number may absorb following this procedure, it would be preferable to introduce a small knife at a distance subcutaneously, and cut the wall.

The best surgical practice is to excise the mass. However, this leaves a scar and, furthermore, because of the rather poor circulation, there is often a failure of healing by primary intention. This necessitates the utmost care in operation, which should always be done with the greatest aseptic precautions, in the hospital.

### "ACCOMMODATIVE PHOSPHENE"

*To the Editor:*—Can you tell me where I can find an account of the "accommodative phosphene" of Czermak and how to elicit it? I can see a luminous ring at a distance in the dark, and on accommodation this becomes smaller, presumably from contraction of the pupil. Tscherning says that the experiment did not succeed with him. I am not satisfied that the ring is due to accommodation. It seems to appear anyway in a dark room. It is extremely vague, but my accommodation is only about 2 D.

REGINALD A. YELD, M.D., Edgewood, B. C.

ANSWER.—Details regarding accommodative phosphene can be found in the following articles:

Purkinje, J. E.: Beobachtungen und Versuche zur Physiologie der Sinne, Prague, J. G. Calve **1**: 126; **2**: 115, 1823.

Czermak, J. M.: Sitsungsb. d. k. Akad. d. Wissensch. **27**: 78.

Helmholtz, H.: Helmholtz's Treatise on Physiological Optics, translated from the Third German Edition, Ithaca, N. Y., the Optical Society of America **2**: 9, 1924.

Helmholtz gives a somewhat detailed discussion and covers the points in question.

### USE OF OVARIAN EXTRACT AND SEX HORMONES

*To the Editor:*—In THE JOURNAL, October 3, there appeared an inquiry on the treatment of menopausal symptoms. I was expecting to find a suggestion as to the use of theelin or amniotin. You mention hypodermic injections of ovarian extract, which are not the same as the aforementioned products. Do you not consider their use and value as yet proved? I have treated several cases, with a substantial percentage of good results, in one case cutting down the heat flashes in two weeks from twenty a day to five a day by the use of 8 cc. of the product. What about these new extracts?

M. M. HART, M.D., New Wilmington, Pa.

ANSWER.—The new preparations of ovarian hormone, such as Theelin and Amniotin, have been used in a large number of cases of troublesome menopausal symptoms, but the results obtained are by no means uniform. Neither Amniotin nor Theelin has been accepted for inclusion in New and Nonofficial Remedies. In many cases, no relief at all is obtained whereas in others, just as in the case cited, the benefit derived is excellent. In some cases in which good results are observed, part of the success may be attributed to the psychologic effect of the injections. In patients who have severe menopausal symptoms, these preparations may be employed but, in addition, it is important to prescribe sedatives and a proper diet and mode of living.

### LEFT-HANDEDNESS AND BRAIN CENTERS

*To the Editor:*—I read an article on "The Left-Handed Child," by Arthur Dean, a newspaper syndicate writer. I beg you to give me your opinion as to the correctness of his statement. Mr. Dean seems to assume that, when the manual center is in the right side of the brain, other important centers which normally, or rather usually, belong on the left side are also in the right hemisphere.

ROBERT W. GIBBES, M.D., Columbia, S. C.

ANSWER.—This statement may be accepted as substantially correct. The "other important centers" referred to are chiefly those concerned with the speech mechanisms, both motor and sensory, and the eupraxis mechanisms. The leading hemisphere in these functions seems to be usually the left in right-handed persons and the right in left-handed persons, though it is possible that this is not always true. Clinical experience also has shown that in some cases there does seem to be a causal relationship between the compulsory use of the right hand by a left-handed person, and neurotic or other disordered behavior.

### HEREDITARY CANCER IN MAN

*To the Editor:*—A mother was found to have cancer of the uterus within a few months after the birth of a male infant. Is this boy more liable to a future development of cancer than if the mother had not had the cancer?

J. DALE GRAHAM, M.D., Columbus, Kan.

ANSWER.—In spite of the fact that in certain animals there is a distinct hereditary tendency to cancer, this has not been established as a factor susceptible of determination in human beings. The child in the case cited does not run a greater risk of the development of cancer than does any other child. This statement applies even if the cancer was present before the child was born.

# Council on Medical Education and Hospitals

## COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

COLORADO: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

MARYLAND: *Homeopathic.* Dec. 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEBRASKA: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

WASHINGTON: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

## Utah June-July Report

Mr. S. W. Golding, director, Utah Department of Registration, reports the written examination held at Salt Lake City, June 30-July 1, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states, and 3 physicians were licensed by the endorsement of credentials, July 14, 1931. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| State University of Iowa College of Medicine | | (1930) | 82.3 |
| University of Louisville School of Medicine | | (1930) | 82 |
| Royal University of Bologna Faculty of Med. and Surg. | | (1930)* | 78 |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Northwestern University Medical School | | (1931) | Idaho |
| Indiana University School of Medicine | | (1917) | Louisiana |
| State University of Iowa College of Medicine | | (1930) | Iowa |
| University of Louisville School of Medicine | | (1930) | Kentucky |
| University of Pennsylvania School of Medicine | | (1928) | Penna. |

| College | LICENSED BY ENDORSEMENT | Year Grad. | Endorsement of |
|---|---|---|---|
| Washington University School of Medicine | | (1930) | N. B. M. Ex. |
| University of Pennsylvania School of Med. | | (1929), (1930) | N. B. M. Ex. |

* Verification of graduation in process.

## California July Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written examinations held at San Francisco, July 6-9, 1931, and Los Angeles, July 21-23, 1931. The examinations covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Two hundred and eighteen candidates were examined, 206 of whom passed and 12 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Number Passed |
|---|---|---|---|
| College of Medical Evangelists | | (1930, 3), (1931, 41) | 44 |
| Stanford University School of Medicine | | (1930, 2), (1931, 43) | 45 |
| University of California Medical School | | (1931, 54) | 54 |
| University of Colorado School of Med. | | (1930, 2), (1931, 2) | 4 |
| Loyola University School of Medicine | | (1930), (1931, 3) | 4 |
| Northwestern University Med. School | | (1930, 3), (1931, 11)* | 14 |
| Rush Medical College | | (1921), (1931, 2) | 3 |
| University of Illinois College of Medicine | | (1929), (1931, 4) | 5 |
| State University of Iowa College of Medicine | | (1930) | 1 |
| University of Kansas School of Medicine | | (1930) | 1 |
| Tulane University of Louisiana School of Medicine | | (1931) | 1 |
| University of Michigan Medical School | | (1931) | 1 |
| Harvard University Medical School | | (1930) | 1 |
| Tufts College Medical School | | (1930) | 1 |
| University of Minnesota Medical School | | (1928), (1931) | 2 |
| Creighton University School of Medicine | | (1931, 9) | 9 |
| Syracuse University College of Medicine | | (1930) | 1 |
| University of Rochester School of Medicine | | (1929), (1930) | 2 |
| University of Oregon Medical School | | (1931) | 1 |
| Jefferson Medical College of Philadelphia | | (1929), (1930) | 2 |
| University of Pennsylvania School of Medicine | | (1929) | 1 |
| University of Manitoba Faculty of Medicine | | (1925) | 1 |
| University of Toronto Faculty of Medicine | | (1918) | 1 |
| McGill University Faculty of Medicine | | (1930, 4), (1931) | 5 |
| University of Vienna Faculty of Medicine | | (1930)† | 1 |
| Royal Univ. of Naples Faculty of Med. and Surg. | | (1916)† | 1 |

| College | FAILED | Year Grad. | Number Failed |
|---|---|---|---|
| University of Illinois College of Medicine | | (1931, 2) | 2 |
| Creighton University School of Med. | | (1930, 3), (1931) | 4 |
| University of Oregon Medical School | | (1930) | 1 |
| Medical Faculty of Trinity University, Toronto | | (1904) | 1 |
| University of Vienna Faculty of Medicine | | (1930)† | 1 |
| University of Bordeaux Faculty of Med. and Pharm. | | (1930)† | 1 |
| University of Amsterdam Medical Faculty | | (1901)† | 1 |
| University of Tomsk Faculty of Medicine, U. S. S. R. | | (1913)† | 1 |

Dr. Pinkham also reports 6 physicians licensed by endorsement of credentials from April 23 to Aug. 6, 1931. The following colleges were represented:

| College | LICENSED BY ENDORSEMENT | Year Grad. | Endorsement of |
|---|---|---|---|
| Rush Medical College | | (1906) | U. S. Army |
| Indiana University School of Medicine | | (1929) | U.S.P.H.S. |
| State University of Iowa College of Medicine | | (1889) | U. S. Army |
| St. Louis University School of Medicine | | (1917) | U. S. Navy |
| Medical College of the State of South Carolina | | (1916) | U. S. Navy |
| Baylor University College of Medicine | | (1930) | U. S. Navy |

* The M.D. degree of two of these applicants is being withheld pending completion of internship.

† Verification of graduation in process.

## Michigan June Examination

Dr. F. C. Warnshuis, former secretary, Michigan Board of Registration in Medicine, reports the written examination held at Ann Arbor and Detroit, June 15-17, 1931. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and fifty-four candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| College of Medical Evangelists | | (1931) | 84.5 |
| Hahnemann Medical College and Hospital, Chicago | | (1918) | 80.2 |
| Loyola University School of Medicine | | (1931) | 78.7, 81.3 |
| Northwestern University Medical School | | (1931) | 84.6, 84.7 |
| Rush Medical College | | (1927) 84.1, (1931) | 82.8,* 85.8 |
| University of Illinois College of Medicine | | (1931) | 85.3† |
| Johns Hopkins University School of Medicine | | (1928) | 85.9 |
| Harvard Univ. Medical School | | (1928) 85.5, (1930) 85, (1931) | 86.2 |
| Detroit College of Medicine and Surgery | | (1931)‡ | 79.7, 80, 80, 80.2, 80.6, 80.9, 80.9, 81.1, 81.5, 81.7, 81.7, 81.8, 81.8, 81.9, 82, 82.2, 82.3, 82.3, 82.3, 82.7, 82.7, 82.8, 82.9, 82.9, 83.1, 83.3, 83.4, 83.5, 83.6, 83.6, 83.8, 83.9, 84.1, 84.1, 84.2, 84.2, 84.3, 84.3, 84.4, 84.5, 84.5, 84.6, 84.8, 84.8, 85, 85.1, 85.2, 85.2, 85.3, 85.5, 85.6, 85.6, 85.6, 85.8, 85.8, 85.9, 86.1, 86.2, 86.3, 87, 87.1, 87.2, 87.4, 87.6, 87.6, 87.9, 89.4 |
| University of Michigan Medical School | | (1929) | 84.2, (1930) 80.6, 84.7, 87.8, (1931) 82.7, 82.7, 82.9, 82.9, 82.9, 83, 83, 83.1, 83.2, 83.3, 83.3, 83.3, 83.4, 83.4, 83.5, 83.5, 83.6, 83.9, 83.9, 84, 84.1, 84.3, 84.3, 84.4, 84.4, 84.4, 84.5, 84.5, 84.5, 84.6, 84.8, 84.8, 84.8, 84.8, 84.8, 84.8, 84.9, 85, 85, 85.1, 85.1, 85.1, 85.1, 85.1, 85.1, 85.2, 85.2, 85.2, 85.2, 85.4, 85.4, 85.4, 85.4, 85.6, 85.6, 85.6, 85.6, 85.7, 85.7, 85.7, 85.7, 85.8, 85.8, 85.8, 85.9, 85.9, 86, 86, 86, 86.1, 86.1, 86.2, 86.2, 86.2, 86.2, 86.2, 86.2, 86.3, 86.3, 86.4, 86.4, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.8, 86.8, 86.9, 86.9, 86.9, 86.9, 87.1, 87.1, 87.1, 87.2, 87.2, 87.2, 87.2, 87.2, 87.2, 87.3, 87.3, 87.4, 87.5, 87.6, 87.6, 87.7, 87.8, 87.8, 87.9, 87.9, 88, 88, 88.1, 88.1, 88.1, 88.1, 88.2, 88.2, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.6, 88.7, 88.7, 88.7, 88.7, 88.7, 88.8, 89.9 |
| University of Oregon Medical School | | (1929) | 84.5 |
| Jefferson Medical College of Philadelphia | | (1930) | 81.6, 82.8 |
| University of Pennsylvania School of Medicine | | (1926) | 86.4, (1928) 81.4, (1930) 84.8, 86.4 |
| Medical College of Virginia | | (1930) | 83.6 |
| University of Alberta Faculty of Medicine | | (1929) | 85.5 |
| University of Toronto Faculty of Medicine | | (1918) 84.6, (1929) | 84.2 |
| Queen's University Faculty of Medicine | | (1929) | 83.2 |
| University of Western Ontario Medical School | | (1930) | 85.5, 89.8, (1931) 82.8, 83.3, 84, 84, 84.2, 84.3, 84.3, 84.9, 85.5, 85.6 |
| McGill University Faculty of Medicine | | (1930) | 82.7 |

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of an internship.

† This applicant has completed his medical course and will receive an M.D. degree on completion of an internship.

‡ These applicants have received an M.B. degree and will receive an M.D. degree on completion of an internship.

# Book Notices

**Detachment of the Retina: A Contribution to the Study of Its Causation and Treatment.** By J. Ringland Anderson, M.C., M.B., B.S., Ophthalmic Surgeon to the Alfred Hospital, Melbourne. With a foreword by Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S. Published for the British Journal of Ophthalmology. Cloth. Price, $6.50. Pp. 207, with 9 illustrations. London: Cambridge University Press; New York: Macmillan Company, 1931.

This is a comprehensive review of the present knowledge of detachment of the retina. The material is divided into chapters, beginning with a presentation of the older ideas concerning the disease, the present ideas about its etiology, and the subjective symptoms and objective observations. Next are described the anatomy and physiology of the retina, the choroid, the circulation of the blood and the aqueous, and the ocular reactions to injuries. The chapter on pathogenesis gives the various theories as to the cause, the history of the origin of these theories, and the associated pathologic changes seen with detachment of the retina. The chapter on diagnosis considers in detail the methods of differentiating this condition from detachments due to sarcoma and gives the field changes as well as tension changes. The chapter on treatment considers the nonoperative method. The main portion of the work deals with the localization of tears or holes in the retina and their treatment by cautery after Gonin, giving in detail the technic for both and the operative results. The section on prognosis discusses the untreated cases and compares these with the cases treated with cautery. The bibliography is complete and conveniently divided into subtitles at the end of each chapter. The work offers nothing original but it does provide for the busy practitioner a compact and satisfactory summary of the present knowledge of the subject and should meet with the widespread approval of ophthalmologists at large.

**Cantidad de hemoglobina de la sangre humana en la República Argentina.** Tesis. Por el Dr. Oscar Orias. Trabajo del Instituto de Fisiología de la facultad de ciencias médicas de Buenos Aires. Paper. Pp. 146. Buenos Aires: Frascoli y Bindi, 1930.

The Newcomer colorimetric technic for the determination of hemoglobin is considered the most practical, exact method, and is the procedure of choice. The bloods of many people of the Argentine Republic have been examined by the author, who concludes that his values for the hemoglobin of this group of people are similar to those obtained in other parts of the world. Hemoglobin values are greater in males than in females, and greater in the new-born than in the adult; the hemoglobin value drops during pregnancy but rapidly returns to normal after the puerperium. At altitudes of 1,200 meters or more, an appreciable increase in hemoglobin occurs. University students and officials show greater hemoglobin values than do soldiers and sailors. It is thought that this apparent discrepancy is due to differences in nutrition, clothing and conditions of work in these classes of people. The variations encountered in different social groups merit further investigation.

**Physiopathologie de la thyroïde: Diagnostic et traitement des goitres.** Par Lucien Dautrebande, de la Foundation Reine-Elisabeth. (Avec la collaboration du Dr. A. Lemort.) Paper. Price, 40 francs. Pp. 326, with 36 illustrations. Paris: Masson & Cie, 1931.

In the first part of the book the author discusses the normal and the pathologic physiology of the thyroid gland in their relations to the chemical composition of the gland, its histology, general metabolism, and the special histology of various nutritional elements. The geographic distribution of goiters throughout the world and their relation to lack of iodine in water and in agricultural products are studied. Original ideas as well as a criticism of former conceptions of hyperthyroidism are presented. The second part of the book is devoted to clinical considerations, and the author presents a physiopathologic classification of thyroid disorders, in which the presence or absence of hyperthyroidism is considered the essential point of differentiation and the determination of the basal metabolic rate is emphasized as being the most important piece of evidence in the differentiation of hypothyroid, normal and hyperthyroid states as well as in the estimation of the gravity of a given case of hyperthyroidism. This point is debatable and would probably be considered by most clinicians as of importance secondary to the clinical observation of the patient. Several chapters are devoted to the exposition of the author's main thesis; i. e., the major importance of prolonged iodine therapy in the successful treatment of hyperthyroidism. The surgical treatment of this condition, which in America at least is generally considered the treatment of choice, is relegated by the author to a place of secondary importance. In an appendix, certain neurotic conditions simulating hyperthyroidism are briefly discussed, together with the differential diagnosis by means of the basal metabolic rate. The book is well arranged throughout and, while little fundamentally new knowledge is presented, many of the apparently minor details give food for thought. A bibliography of several hundred titles completes the work.

**Steps in the Dark.** By Milton Mayer and John Howe. Cloth. Price, $2.50. Pp. 227. Chicago: Thomas S. Rockwell Company, 1931.

This volume includes a series of sketches for the popularizing of knowledge concerning science. Among the subjects of medical interest are the researches of Falk on influenza, of Luckhardt on ethylene, of Maud Slye on cancer, of Carlson on hunger and of Jacobson on relaxation. The first and the last of these are hardly sufficiently established or sufficiently significant to warrant the type of consideration that is given them. The interest of the other essays given in the book is of general scientific rather than of medical importance.

**Die vierfache Muskelinnervation einschliesslich der Pathogenese und Therapie der progressiven Muskeldystrophie.** Von Ken Kuré, Professor an der Universität Tokyo. Paper. Price, 20 marks. Pp. 320, with 137 illustrations. Berlin: Urban & Schwarzenberg, 1931.

This is an account of a large amount of research work on the cerebrospinal, sympathetic and autonomic innervation of muscle, all correlated with the investigations of other workers, which are subjected to a critical review. Chemical and pharmacologic investigations are reported as well as histologic studies and physiologic experiments. The chief practical application of interest to practicing physicians relates to the muscular atrophies. In a general way, so-called spinal muscular atrophy, including amyotrophic lateral sclerosis and neuritic muscular atrophy (Charcot-Marie type) are related to the cerebrospinal motor system, while it is claimed that in muscular dystrophy the sympathetic and autonomic innervation is at fault. The author has found that benefit has been obtained from treatment with atropine and pilocarpine, provided the motor nerve endings have remained intact.

**The Cardiac Cycle.** By Harrington Sainsbury, O.B.E., M.D., F.R.C.P., Consulting Physician to the Royal Free Hospital, Ventnor. Cloth, Price, $1.75. Pp. 79. New York: William Wood & Company, 1931.

Theories as to the phenomena of the cardiac cycle must, the author says, tally not alone with the facts of physiology but with the laws of physics and chemistry that operate as well in the living body as in the outer so-called inorganic world. When physiologic views are at variance with these laws, such views must yield; physics and chemistry are fundamentals. He makes the flow of the lymph a part of the circulatory act, a part of "one general, associated, liquid movement which obtains throughout the body—a movement essential to its corporate life." He stresses the pulse wave as an important pressor factor in the lymph circulation. The monograph is scholarly and well written. It will interest especially the student of cardiac physiology.

**Arzneiverordnungsbuch der Deutschen Arzneimittelkommission.** Fourth edition. Paper. Pp. 204. Leipzig: Verlag der Buchhandlung des Verbandes der Ärzte Deutschlands, 1930.

This collection of brief descriptions of remedies "that might be recommended to physicians" is edited by a committee somewhat analogous to the Council on Pharmacy and Chemistry of the American Medical Association, which was originated in 1911 by the Deutsche Gesellschaft für innere Medicin. The booklet itself differs from New and Nonofficial Remedies in that it gives information on official remedies also. It is, indeed, intended as a physician's handbook. Systematic attention is given to the cost of remedies and even of finished prescriptions, which seems to be demanded by the prevailing financial condition of the country, and most especially of the *krankenkassen*.

# Medicolegal

## When Disease Is Not an Accident

*(Jackson v. Employers' Liability Assurance Corp. (N. Y.), 248 N. Y. S. 207)*

The defendant insured the plaintiff, Jackson, as the owner of an apartment house, against loss from "bodily injuries, including death at any time resulting therefrom, accidently sustained by any person or persons while within or upon the premises." In one of the plaintiff's apartments, a 3 months' old infant, Cochenour, died from what the attending physician said was a general catarrhal condition, bronchitis and gastro-enteritis, "a toxic state of the general system as the result of exposure and chilling of the body surfaces." The administrator of the estate of the deceased infant sued Jackson, who he alleged had failed and neglected to heat, as required by law and under the terms of the lease, the apartment in which the infant lived. Jackson, he contended, had permitted the apartment to continue unheated, cold, damp, unsafe, and unhealthful, and was therefore liable for damages for the death. Judgment was rendered against Jackson, which he paid. He thereafter brought the present suit under his insurance policy to be reimbursed for the loss thus sustained.

The decision in the case turned on the answer to the question: Was or was not the death of a tenant from acute bronchitis and gastro-enteritis that were caused by the negligent and the unlawfully defective heating of an apartment over a considerable period of time an injury due to an accident, within the meaning of the insurance policy? The word "accident," said the supreme court, special term, King's County, from the point of view of the average man connotes an event of the moment rather than a condition which develops, progresses, and changes through a period of time. It means a happening, not only unexpected and unusual, but one referable to a definite and fixed time. Where disease was contracted from inhaling fumes gradually and over an extended period, the court could find nothing catastrophic or extraordinary in the happening, could not "fix time or place when a disease was contracted," and therefore held that a finding that disability was caused by accidental injury was not justified. *Rosenthal v. National Aniline & Chemical Co.*, 216 App. Div. 588, 215 N. Y. S. 621. In the present case illness was not occasioned by a definite or specific occurrence of a sudden and catastrophic nature and could not be regarded as the result of an accident.

Not only was the death in this case not the result of an accident, within the meaning of the policy, but it did not result from bodily injuries. The infant sustained no cut, abrasion, nor other traumatic injury, whereby poisonous substances or germs entered the system. Admittedly, a bodily injury may result from causes other than physical force, but in such cases it will usually be found that there has been an occurrence associated in the average mind with a known result, which follows as a natural and usually inevitable consequence. Such, for instance, are cases of typhoid fever caused by drinking water containing typhoid germs and cases of glanders caused by direct contact with infectious matter. These have been held to constitute bodily injuries accidentally suffered within the meaning of insurance policies. The circumstances of the death in the present case, however, were not similar. Insufficiency of the heating continued in varying degrees for nearly two months before death. The onset of the fatal illness could not be attributed to inadequate heating at any particular time. The extent to which other causes contributed to the death was conjectural. The lack of a cause relatively definite in point of time, catastrophic in character, and followed by a usual, if not inevitable, result distinguishes the present case from cases in which typhoid fever has followed drinking of contaminated water, tuberculosis has followed sudden inhalation of fumes, and glanders has followed direct contact with infectious substances.

Illness and death in this case were held, therefore, not to have resulted from a bodily injury accidentally sustained, and judgment was rendered in favor of the defendant insurance company.

## License Revoked for Criminal Abortion

*(Tapley v. State Board of Medical Examiners (Calif.), 295 P. 911)*

Complaint was filed with the state board of medical examiners of California, charging that Tapley attempted to procure and did procure two criminal abortions, death resulting in each instance. In the course of the hearing, however, the complaint was amended so as to charge also that he "agreed and/or offered to" procure those abortions. The statute defines "the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion" as unprofessional conduct. The board found Tapley guilty and revoked his license. He appealed to the superior court, city and county of San Franciso, which affirmed the order of the board, and thereupon he carried the case by a writ of certiorari to the district court of appeal, first district, division 2.

Tapley contended that the complaint was fatally defective because it did not state facts to show that he had procured or aided or abetted or attempted or agreed or offered to procure a criminal abortion, and that the words "criminal abortion" in the complaint as it then read represented nothing more than a legal conclusion based on undisclosed facts. All the facts necessary to the validity of a criminal complaint for criminal abortion, he contended, should be alleged in the complaint against him. The court of appeal pointed out, however, that both the district court of appeal and the Supreme Court of California had held contrary to Tapley's contention. To charge a physician in the language of the act with committing a criminal abortion is sufficient, without stating the facts enumerated in the penal code, because the language of the statute is sufficiently explicit to advise a person so charged of the particular kind of unprofessional conduct with which he is accused. Tapley contended further that the board had denied him "due process of law," by rejecting his defense that he had been acquitted by the superior court of Yuba County of one of the charges specified in the complaint. But the district court of appeal held that the state board of medical examiners was not bound by the acquittal of Tapley in the superior court and that evidence of that acquittal was properly rejected, quoting in support of its opinion 15 Calif. Jur. 114:

> Judgments in criminal proceedings are generally not competent or conclusive in civil proceedings, and vice versa, not only because ordinarily there is not the necessary identity of parties, but also because the same rules of evidence and degree of proof do not prevail in the two classes of proceedings.

Moreover, even if evidence of the judgment of acquittal had been admitted, it would have exculpated Tapley of only one of the offenses charged against him. In discussing Tapley's contention that the state board of medical examiners was without authority to allow the complaint against him to be amended by the insertion of new unsworn charges, without affording him an opportunity to plead to or put those charges in issue, the court pointed out that while such amendments were not commonly allowed in criminal actions, it was common practice to allow them in civil cases. Proceedings before the state board of medical examiners are more closely akin to civil than to criminal proceedings. The proceedings of the board, moreover, are not governed by the technical rules of pleading and practice and the analogies of criminal law may not be invoked. The provisions of the criminal code were not made applicable by the fact that the offense was described as "criminal abortion." Furthermore, the added charges of agreeing to perform criminal abortions were not so entirely foreign to the charges of actually performing them as to take Tapley by surprise or to jeopardize his right of defense.

The judgment of the court below affirming the order of the state board of medical examiners revoking Tapley's license was affirmed, and a rehearing was denied.

**Trauma: Sarcoma of Bone Attributed to.**—In February, 1926, the plaintiff, 17 years old and in good health, slipped and fell while descending a flight of stairs in the defendant's building, the accident being attributed to the condition of the steps and the lack of light in the stairway. Her left knee struck the concrete floor violently and stung and pained her. In the following few months the knee became swollen and continued to be painful. About a month after the accident she consulted

a physician, but treatment failed to relieve the pain and swelling. The knee grew steadily worse. In September or October, 1926, an operation was performed and the plaintiff was shown "to have an infection of the bone called 'sarcoma' which had resulted from the injury." "Sarcoma," said the Supreme Court of Missouri, Division No. 2, before which the appeal was heard, "is a condition resulting from infection sometimes caused by traumatic injury." At the time of the trial, November, 1927, the plaintiff was not able to walk without the aid of a cane or somebody to lean on. The testimony of medical experts indicated that it was highly probable that an amputation would be necessary. There was substantial evidence, said the Supreme Court, tending to show that the tumor from which the plaintiff suffered was of a malignant type, likely to get into the blood stream, if it had not already done so, and carry "the infection" to other parts of the body, threatening not only the patient's health but her life. Under such circumstances the judgment for $25,000 awarded by the trial court was not unreasonable.—*Capstick v. T. M. Sayman Products Co. (Mo.), 34 S. W. (2d) 480.*

**Hospitals: Liability of Superintendent of Insane Asylum for Crime Committed by Released Inmate.**—Smith, an inmate of the Central Louisiana Hospital for the Insane, was released by its superintendent, the defendant in this case. On the day Smith was released, he killed the plaintiff's husband. A lunacy commission found that Smith was insane at the time of the homicide. The widow of Smith's victim, in suing the superintendent of the asylum, alleged that he deliberately and maliciously permitted Smith to have his liberty "when he knew that Smith was suffering from paranoia, which is recognized as an incurable disease, causing the sufferer to be extremely dangerous, with a persistent desire to take human life." The trial court gave judgment in favor of the defendant, which judgment the court of appeals of Louisiana, second circuit, affirmed. Through the board of administrators of the hospital, said the appellate court, the superintendent of the hospital was the representative of the state in conducting a state institution. In releasing inmates, he was vested with discretionary authority, in the exercise of which he released Smith. His good faith, therefore, cannot be questioned in a suit for damages resulting from an act of a discharged inmate, even though it be charged that in releasing that inmate he acted maliciously and without regard to the rights and safety of the public. Moreover, even though it were admitted that the superintendent was guilty of negligence, it could not be said that that negligence or the fact that Smith was released was the proximate cause of the death of the plaintiff's husband.—*Cappel v. Pierson (La.), 132 So. 391.*

**Evidence: Scope of Expert's Opinion.**—In a trial under an indictment charging murder by shooting, it was shown that the body of the victim was found on the railroad track, between the rails, while the head, which had been severed from the body, was lying about two feet from one of the rails. There was a gunshot wound in the left breast and another in one of the arms. The spinal column protruded from the body about 3 inches. The bone was not crushed, nor were the tissues bruised or mangled. The Court of Appeals of Kentucky held that it was not improper for a physician who had had considerable experience in cases of persons who had been run over by trains and who was testifying as an expert, to testify that he did not believe that "the railroad wheel cut this man's head off."—*Spencer v. Commonwealth (Ky.), 35 S. W. (2d) 319.*

**Hospitals: Liability for Injury to a Special Nurse.**—The plaintiff, a nurse, was caring for a patient in one of the rooms of the defendant hospital. She was not in the employ of the hospital but in the employ of the patient who occupied the room. According to her testimony, when she went on duty she told the head nurse on the floor that the floor of the room was slippery. On the following day she slipped, fell, and was injured. From a judgment in her favor, the hospital appealed to the Supreme Court of California. In her brief, the nurse claimed "a status enabling her to claim the same degree of protection as an employee in her place of employment" and that "the employer is bound to provide a reasonable safe place for his employee to work in." It clearly appears, however, said the court, that her status was that of an invitee and that she was in no sense an employee of the hospital. She had full knowledge of the condition of the floor during the afternoon of the first day of her employment in the hospital and for two hours in the forenoon of the next day. The hospital had no knowledge of the fact superior to that possessed by the nurse. If it was negligence for the hospital to maintain the floor in the slippery condition described by the nurse, there appears to be no escape from the conclusion that it was negligence for the nurse, with full knowledge of such condition, to continue in the use thereof. It was not necessary for the hospital to plead the contributory negligence of the nurse when that negligence was disclosed by her own testimony.—*Mautino v. Sutter Hospital Association (Calif.), 296 P. 76.*

**Evidence: Qualifications of Physicians to Testify as to Firearms.**—In a prosecution for murder, two physicians who examined the body of the deceased swore that from that examination they concluded that he had been shot through the head with a small bullet, either a 0.30 or 0.32 caliber. One of these physicians testified that the pistol submitted to him in the course of the trial was a 0.38 caliber pistol and in his judgment that was not the size of the bullet that made the wound in the head of the deceased. He testified further: "The shell you hand me now, is a 32, and looks like the bullet that made the wound." Concerning his qualifications to give such testimony, one physician said:

> To some extent I am familiar with the various sizes and calibers of pistols. In my practice I have had some experience in observing and treating gunshot wounds, but not a great deal of experience along that line. From my experience and observation of various caliber of guns and pistols, I think I can tell about what size caliber bullet that made the wound I saw there on Stegall's head.

The other physician testified:

> I have had quite a little experience in examining wounds of that character, and am familiar with the various sizes and calibers of guns and pistols. From the examination I made of the wound found on the deceased, in my judgment it was made with a 30 or 32 caliber bullet.

Objection was made to the testimony of these physicians on the ground that they were not shown to be sufficiently qualified to give their opinions. But, said the court of criminal appeals of Texas, we think the objections to the testimony of neither witness were tenable.—*Landry v. State (Texas), 35 S. W. (2d) 433.*

**Evidence: Expert Opinion as to Causal Relation Between Disability and Accident.**—If there is no dispute concerning the manner and cause of an injury or that an injury was sustained, a physician may directly testify that in his opinion a condition found later was caused by that injury. In this case there was no dispute that the plaintiff came in contact with a live wire and was severely injured. There was no error, said the Supreme Court of Illinois, in permitting a medical witness to state as his opinion that in all cases of severe electric shock a dilatation of the heart results, and to testify that he had found, both by clinical examination and by roentgenograms, that the plaintiff at the time of the trial was so affected.—*Wolczek v. Public Service Co. of Northern Illinois (Ill.), 174 N. E. 577.*

**Insanity: Effect on Competence of Witness.**—The fact that a person has been adjudged insane and confined in a state institution does not necessarily render him incompetent as a witness. Insane persons may have lucid intervals, and it is for the jury to determine whether the occurrence to which the witness testified occurred during a lucid interval and whether the witness is sane when he testifies.—*Conoway v. State (Ga.), 156 S. E. 664.*

## Society Proceedings

### COMING MEETINGS

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### Alabama Medical Association Journal, Montgomery

**1:** 45-88 (Aug.) 1931

*Menstrual Disorders of Interest to General Practitioner. L. E. Burch, Nashville, Tenn.—p. 45.
*Differential Diagnosis of Certain Fevers. E. M. Mason, Birmingham. —p. 50.
A Neglected Boil. G. E. Blue, Montgomery.—p. 53.
What the Young Doctor Should Know. W. M. Cunningham, Corona. —p. 57.

**1:** 89-136 (Sept.) 1931

Ear, Nose and Throat in Relation to General Diseases. J. B. Greene, Asheville, N. C.—p. 89.
Mechanism of Production and Treatment of Shock. A. Blalock, Nashville, Tenn.—p. 94.
Heart in Toxic Goiter. H. P. Shugerman, Birmingham.—p. 99.
Diagnosis and Treatment of Common Dermatoses. R. P. Lester, Mobile. —p. 104.

**Menstrual Disorders.**—Burch emphasizes the following facts: 1. Abnormal uterine bleeding is due to three conditions; namely, hyperplasia, ulcerative lesions (cancer is the most common example of these) and the accidents of either uterine or extra-uterine pregnancy. 2. All cases of abnormal uterine bleeding call for a complete physical examination of the patient, which must include a careful pelvic examination (both digital and with the speculum). 3. A confirmation of the diagnosis can be obtained from the laboratory in each of the three etiologic factors.

**Differential Diagnosis of Certain Fevers.**—Mason calls attention to the fact that typhus fever, tularemia and undulant fever must be classed with malaria, typhoid and tuberculosis as among the commoner causes of continued fever. All these maladies have certain symptoms and signs in common. Therapeutic efforts in these diseases should be symptomatic only until exact diagnosis is determined. History and physical examination retain their importance in differential diagnosis, but final diagnostic conclusions are dependent on certain laboratory tests that are available to every physician, wherever located. Discriminating use of these tests must be made at an early stage in fevers, in order that appropriate therapy may be instituted without delay.

### American Journal of Diseases of Children, Chicago

**42:** 735-966 (Oct.) 1931. Part I

*Prognosis of Acute Endocarditis in Childhood: Analysis of One Hundred Cases. J. L. Morse, Boston.—p. 735.
*Significance of Retention Ratio of Calcium: Phosphorus in Infants and in Children. Genevieve Stearns, Iowa City.—p. 749.
*Basal Metabolism in Diabetic Children. Anne Topper, New York.—p. 760.
Anorexia, Loss of Weight and Capricious Appetite. Maud Loeber and H. L. Weinberger, New Orleans.—p. 767.
Growth in Height and Weight, and Retention of Nitrogen, Calcium and Phosphorus During Recovery from Severe Malnutrition. Genevieve Stearns and Dorothy L. R. Moore, Iowa City.—p. 774.
*Treatment of Toxicosis with Aid of Continuous Intravenous Drip of Dextrose Solution. S. Karelitz, New York.—p. 781.
Epidemic of Measles: Attempted Prophylaxis with Whole Blood. S. A. Blauner and H. Goldstein, New York.—p. 803.
Electrocardiographic Studies in Infectious Diseases: III. Diphtheria. C. Shookhoff and L. M. Taran, Brooklyn.—p. 811.
*Oxycephaly as Pathogenic Entity. A. N. Bronfenbrenner, Thiells, N. Y. —p. 837.
Xanthomatosis. H. B. Mettel, Indianapolis.—p. 858.
Lupus Erythematosus Disseminatus Acutus in Juvenile. C. C. Stewart and W. H. Goeckerman, Rochester, Minn.—p. 864.
Miliary Tuberculosis with Purpura in Infancy. M. S. Gaede and J. O. Vaughn, Los Angeles.—p. 869.
American Academy of Pediatrics. I. A. Abt, Chicago.—p. 874.
William Moss, ?-1802. J. Ruhräh, Baltimore.—p. 886.

**Acute Endocarditis.**—Morse reports that of 100 children seen during the first attack of acute endocarditis, from ten to thirty years before his article was written, 36 are dead, 3 are cardiac invalids and 61 are alive and well. Thirty-seven of those who are alive and well have normal hearts, eighteen have slightly damaged hearts, and the hearts of six were not examined. The age at the time of the onset of the disease and the intervals elapsing between the onset and the time when the patients were first seen had no apparent influence on the prognosis. In the cases in which rheumatism seemed to be the cause, the results were not so good as in those in which the apparent cause was an infection of the upper respiratory tract. Myocarditis and pericarditis were unfavorable signs. In a large proportion of the fatal cases, death occurred early. Recurrences of the rheumatic infections were not as common as is usually believed, and repeated attacks did not always prevent recovery. Only one of the patients who are alive and well has a diastolic mitral murmur. The results apparently depended more on the care that the children received than on any other single factor.

**Retention Ratio of Calcium: Phosphorus.**—Stearns considers that a retention ratio of calcium: phosphorus of between 1.5: 1 and 2: 1 is normal for an infant. A retention ratio lower than 1.5: 1 indicates a more rapid growth of soft tissue than of bone. A ratio of 2.1: 1 or over is considered as probably indicative that a calcium shortage in the body is being corrected. From the reported retentions of calcium and phosphorus in artificially fed infants, a retention of at least 40 mg. of calcium and from 20 to 25 mg. of phosphorus per kilogram of body weight daily is considered desirable for artificially fed infants. The ratio of retained calcium to phosphorus will be somewhat lower in older children than in infants because of the great increase in the relative amount of muscular tissue during childhood. In a normal child, it is considered that the retention ratio will probably be lower than that observed in infants, but it should be greater than 1: 1. In older children, the absolute retention of calcium and phosphorus per kilogram of body weight may be expected to decrease with the age of the child. A daily retention of at least 10 mg. of phosphorus per kilogram of weight is desirable even in older children. The retention of calcium should be at least equal to the retention of phosphorus. Retentions of calcium and phosphorus of less than 10 mg. per kilogram of body weight are probably not optimal in very young children.

**Basal Metabolism in Diabetes.**—Topper made 100 determinations of basal metabolism on 27 diabetic children at intervals of six months over a period of from one to four years. The average rate of basal metabolism obtained in twenty-eight tests made on patients between the ages of 5 to 10 years was plus 3 per cent; in twenty-one tests made on patients between the ages of 10 and 12, plus 4 per cent; in thirty-one tests made on patients between the ages of 12 and 15, plus 5 per cent; in eighteen tests made on patients between 15 and 17 years, plus 21 per cent, and in two tests made on patients over 17 years of age, plus 7 per cent. On the basis of her observations the author concludes that the rate of basal metabolism in treated diabetic children is essentially normal. There is an increase in the basal metabolic rate between the ages of 15 to 17 years, which is probably a manifestation of puberty. This increase occurs normally between the ages of 11 to 14 years, but as puberty seems to be somewhat delayed in diabetic children, as evidenced by the late appearance of the catamenia, the prepuberty rise in basal metabolism also occurs later than in normal children. With proper care, the condition of nutrition in diabetic children is normal. Sexual maturity, however, seems to be somewhat delayed. The internal secretory glands are so closely interrelated that a defect in one probably somewhat checks the action of the others.

**Dextrose Solution in Toxicosis.**—Karelitz emphasizes the fact that certain facts previously known and borne out by experience must constantly be kept in mind if good results are to be obtained in the treatment of toxicosis. He recapitulates these factors thus: 1. Treatment must be radical and prompt as soon as the diagnosis of toxicosis is made. If too much time is lost, treatment may be of no avail. (Supportive therapy, such as the administration of epinephrine and caffeine, should be given as may be indicated.) 2. All cases of toxicosis should be considered severe. The intravenous administration of dex-

trose and transfusion should be employed promptly, and the minimum period during which milk is withheld should be from twenty-four to thirty-six hours, or until the detoxification is complete. 3. Once the feeding of milk is started it should be given in small quantities of from 5 to 10 cc., and increased slowly, the limited tolerance for food during this period of adjustment always being respected. 4. When there is a relapse, treatment should be started again from the beginning with the intravenous administration of dextrose, transfusion of blood and withholding of milk. 5. Patients with intercurrent infections, especially otitis media and abdominal distention, should be treated actively. 6. Special nursing care is of the greatest importance. The intelligent nurse often sees the child in a truer light than the physician who calls only two or three times daily. Her observations are most important in deciding when to start to give the patient milk, when to increase the amount and when to discontinue the use of it. The author believes that the routine he outlines, especially the continuous intravenous administration of dextrose solution by the drip method, can be applied to almost all intoxications of early childhood, especially those associated with gastro-intestinal disturbances. This method can be employed for such conditions as severe acidosis originating in diabetic or in cyclic vomiting. In the former, a steady supply of dextrose with or without insulin may be administered; in the latter, dextrose could be given as needed. Some cases of peritonitis, bacteremia, dysentery, icterus, tetanus, bulbar poliomyelitis, postdiphtheritic paralysis of the palate and shock —surgical, traumatic or due to burns—also suggest themselves for this treatment.

**Oxycephaly.**—In the study of a series of clinical cases of oxycephaly as well as the data reported in the literature, Bronfenbrenner noted certain characteristics of a compensatory adjustment mechanism: When a premature closure of the coronary skull suture occurs, it impairs the normal adaptability of the skull to the growing brain of a child, and an effort to meet the demands of the growing brain brings about the oxycephalic deformity. Factors of the premature synosteosis and the subsequent compensatory struggle may naturally damage the brain and its adjacent parts. Most frequently the optic nerve undergoes severe atrophic changes. The degree of the damage sustained by the entire brain bears a direct relation to the efficiency of the compensatory process: the less effective has been the compensatory mechanism and, thus, the less outspoken are the morphologic features of oxycephaly, the greater the brain damage to be expected. Hence, a marked mental defect is found in rather mild, atypical instances of oxycephaly (and allied deformities of the skull), while in cases with outspoken oxycephalic features a mental defect might not enter into the clinical picture at all. Various intracranial infectious processes appear to be the main etiologic factors in the premature skull synosteosis of oxycephaly and allied deformities of the skull. The cases reported by the author emphasize the importance of tuberculosis and especially syphilis as probable etiologic factors of oxycephalic deformity.

## Am. J. Roent. & Rad. Therapy, Springfield, Ill.

**26:** 511-638 (Oct.) 1931

Contribution of Roentgenology to Medicine and Surgery in Last Twenty-Five Years. J. T. Case, Chicago.—p. 511.
Progress in Development of Roentgen-Ray Apparatus. H. M. Imboden, New York.—p. 517.
Relation of American Journal of Roentgenology and Radium Therapy to Development of Radiology. A. C. Christie, Washington, D. C.—p. 523.
Contributions of a Quarter Century of Electron Physics to Roentgen-Ray Science. G. L. Clark, Urbana, Ill.—p. 528.
Historical Evolution of Roentgen-Ray Plates and Films. F. C. Martin and A. W. Fuchs, Rochester, N. Y.—p. 540.
Early American Roentgeniana. E. H. Skinner, Kansas City, Mo.—p. 549.
*Review of Pneumonoconiosis: Further Roentgenologic and Pathologic Studies. H. K. Pancoast and E. P. Pendergrass, Philadelphia.—p. 556.

**Review of Pneumonoconiosis.**—Pancoast and Pendergrass review the subject of pneumonoconiosis from the standpoint of its etiology, its pathology and its roentgenographic appearances. Pneumonoconiosis is a more or less necessary risk of commercial development in the progress of civilization, but its progress and serious aspects may be lessened by certain preventive measures in most instances. Its incidence in many industries apparently cannot be altogether eliminated. It has aroused widespread interest and has received a great amount of study during the past few years. The roentgenologic examination is the most important and accurate means of detecting its presence, especially in early cases, of studying its progress and of determining its extent and severity. Rapidity of progression is easily determined by serial study. The authors believe that roentgenology will be employed more and more extensively as the necessity of study of workers in hazardous industries becomes realized and regulations for protection and compensation laws are adopted in this country. The roentgenologist must be experienced in his work and honest in the expression of his opinions. It behooves the roentgenologist to become thoroughly familiar with the subject from every angle. The particular hazards of certain industries must be understood and the roentgenographic appearances more or less characteristic of some of them must be learned. Roentgenographic appearances are the expressions of pathologic changes, and to interpret them properly requires an intimate knowledge of the pathology of the condition. A summary is given of the present exact knowledge of the pathology of pneumonoconiosis based on necropsy study and animal experimentation. Various theories advanced in explanation of some uncertain points are given brief consideration. Various classifications of the degrees of progress of the condition are in use in different countries. Most of these have a clinical basis with which roentgenographic appearances must be made to conform. No one of them seems adequate or entirely satisfactory in its application to every dusty industry, especially from the standpoint of the roentgenologist. The authors propose a new pathologic-roentgenologic classification.

## Archives of Ophthalmology, Chicago

**6:** 489-646 (Oct.) 1931

Holth's Iridencleisis Antiglaucomatosa: Follow-Up Examination of One Hundred and Twenty-Two Eyes from Six to One Hundred and Fifty-Nine Months After Operation. H. G. A. Gjessing, Drammen, Norway.—p. 489.
Presence of Vitamin A in Retina. A. M. Yudkin, New Haven, Conn.—p. 510.
Diagnostic Scales for the 1 Degree and 0.17 Degree Form Field Stimuli for Eight Principal Meridional Quadrants Taken Separately. C. E. Ferree, G. Rand and M. M. Monroe, Baltimore.—p. 518.
*Retinal Changes of Arteriosclerotic Heart Disease and Essential Hypertension. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 535.
Bitemporal Paracentral Scotoma: Case. C. E. G. Shannon, Philadelphia.—p. 544.
Lens Extract: Its Preparation and Clinical Use. E. L. Burky and A. C. Woods, Baltimore.—p. 548.
Gunshot Wound of Optic Nerve: Case. Hallie Hartgraves and P. C. Kronfeld, Chicago.—p. 554.
Development of Lens: Its Significance in Interpretation of Lenticular Abnormalities. B. Friedman, New York.—p. 558.
Buphthalmos Secondary to Congenital Iridocyclitis. W. G. M. Byers, Montreal.—p. 578.
*Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide. Beatrice M. Kesten, New York.—p. 582.
Tumors in Pituitary Area: Neurologic Symptoms. T. H. Weisenburg, Philadelphia.—p. 589.

**Retinal Changes in Heart Disease.**—Horine and Weiss believe that retinal changes must be correlated with the modern knowledge of heart disease. The failure of the authors of ophthalmologic textbooks to realize that arteriosclerotic heart disease and essential hypertension are distinctly different entities has caused much confusion. The blood pressure is elevated in essential hypertension but not in arteriosclerotic heart disease. Retinal changes in essential hypertension are quite different from those of simple arteriosclerosis. The terms albuminuric and nephritic retinitis are etiologically inaccurate and should be discarded. When referring to a patient with essential hypertension, one should use the term arteriolar sclerotic retinitis in place of arteriosclerotic retinitis. Retinal arteriolar sclerosis is usually progressive and, once developed, is permanent. The persistence of retinal arteriolar sclerosis permits of a diagnosis of essential hypertension even if the blood pressure is normal. Prognostically, changes in the fundus are of definite value.

**Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide.**—Kesten reports a case of conjunctival and skin sensitivity to yellow mercuric oxide. This sensitivity was confirmed by a disappearance of the inflammation when mercury ointment was discontinued, by a reappearance of the eruption following its application, and by positive patch tests.

## Archives of Otolaryngology, Chicago

**14:** 413-550 (Oct.) 1931

*Production of Voice and Speech Following Total Laryngectomy. W. W. Morrison, New York.—p. 413.
*Rôle of Chronic and of Subacute Infections in Diabetic Children. D. M. Lierle and J. J. Potter, Iowa City.—p. 432.
Relation of Clinical to Bacteriologic Observations in Normal and Diseased Maxillary Antrums. F. B. Balmer, Chicago.—p. 440.
*Plastic Surgery of Nose. L. A. Peer, Newark, N. J.—p. 462.
Retropharyngeal Abscess: Newer Methods of Diagnosis and Treatment. F. D. Woodward, University, Va.—p. 467.
Myringitis Bullosa: Two Cases. E. F. Ziegelman, San Francisco.—p. 472.

**Production of Voice and Speech Following Total Laryngectomy.**—Morrison calls attention to the fact that with the increasing number of persons rendered voiceless by total laryngectomy for laryngeal cancer there is a growing need for a therapy of pseudovoice production without the larynx. Patients with a complete, chronic, air-tight stenosis of the larynx from any cause are similarly in need of a pseudovoice. Laryngeal prostheses, or artificial larynges, have so many disadvantages that their use should be restricted to the patient who cannot learn to produce any type of pseudovoice. There are several types of mechanism of the production of a pseudovoice. One is the true buccal or pseudowhispered voice. Almost every laryngectomized patient learns it without difficulty; it is so faulty and imperfect that it should be employed only when a more satisfactory type cannot be produced. The pharyngeal pseudovoice is usually fairly satisfactory. It is produced with the aid of a pseudoglottis formed at the back of the mouth or in the hypopharynx, where air that has been aspirated or swallowed into a vicarious air chamber in the lowest hypopharynx or the esophagus and expelled again is set into audible vibrations; such sounds are modified into the vowels and consonants of the pseudovoice. One of the most perfect forms of the pseudovoice is the esophageal type, in which the vicarious glottis lies at the esophageal mouth of Killian, and the vicarious air chamber is formed within the lumen of the esophagus, particularly in its cervical and upper thoracic portions. Here the mechanism of pseudovoice production is strikingly like that of normal speech. In some cases the cardiac end of the stomach, with the stomach air bubble, may be the vicarious air chamber, which furnishes a stream of air for a pseudoglottis at one of the sites mentioned. A fairly definite system of therapy directed toward teaching the patient to produce one or another of the types of pseudovoice has been elaborated. It seems essential that all surgeons who perform total laryngectomy or who have patients with complete, chronic laryngeal stenosis should be aware of the facts given and should attempt to aid these voiceless persons in securing a useful pseudovoice; such patients will not be cut off in their social intercourse, nor will they be unable to earn a living because of their lack of intelligible speech. Having in view the fact that almost all laryngectomized patients can learn a pseudovoice, the laryngeal surgeon should, if it is possible, so conduct the operation as to favor the production of the pseudovoice, at least, on anatomic and physiologic grounds.

**Chronic and Subacute Infections in Diabetic Children.**—According to Lierle and Potter, chronic and subacute infections of the upper respiratory tract are common among diabetic children. Operative procedure on the diabetic patient is no more hazardous than on the nondiabetic patient, if proper preoperative treatment is observed. In the cases studied by the authors, frequent improvement in the general health as well as in the tolerance for carbohydrates was seen following treatment for chronic infection. Chronic and subacute infections are much more frequently diagnosed in children when a thorough and complete otolaryngologic study is made. A child with diabetes should receive the same careful study for foci that would be given an arthritic or nephritic patient.

**Plastic Surgery of the Nose.**—Peer divides nasal deformities into two main classes: those in which all the normal nasal elements are present and those in which there is a loss of some of the elements. A high deviation in the cartilaginous septum will prevent straightening of the bony bridge. In lateral displacements of the lower part of the nose, the cartilage causing this displacement must be removed. A submucous resection and rhinoplasty are never combined at the same operation. When a submucous resection is performed first, an autoimmunity probably develops. This apparently protects the patient against infection during the second operation. Depressions are filled with lower lateral cartilage, ear cartilage or rib cartilage, depending on their depth. A tube flap from the arm is best suited for the repair of partial loss of the external nose.

## Colorado Medicine, Denver

**28:** 430-472 (Oct.) 1931

Presidential Address. E. Delehanty, Denver.—p. 433.
*Nephritis: Recent Concepts and Modern Treatment. W. B. Yegge, Denver.—p. 441.
Factors Concerned in Causation of Uterine Anomalies: Case: Uterus Rudimentaris Solidus Duplex. C. W. Anderson, Denver.—p. 449.
Art of Medicine Versus Drugs. N. L. Beebe, Fort Collins.—p. 453.

**Nephritis.**—Yegge calls attention to the fact that no satisfactory classification of nephritis acceptable to both clinician and pathologist has yet been perfected. Despite the recent advances in tests for renal impairment, the most practical renal function test for the average clinician is the water concentration and dilution test of Volhard. One must have knowledge of the character of edema formation and salt retention before he proceeds with the treatment of the various forms of nephritis. The reason for the formation of the different abnormal urinary constituents must be understood before one can intelligently treat nephritis. The method to adopt in the treatment of the different forms of nephritis depends to a large extent on the concentrating power of the kidneys, the percentage of nonprotein nitrogen in the blood, the amount of fluid retention, and the general condition of the patient.

## Journal of Thoracic Surgery, St. Louis

**1:** 1-112 (Oct.) 1931

*Postoperative Atelectasis and Collateral Respiration. C. M. van Allen and T. S. Jung, Peiping, China.—p. 3.
*Mortality of Operation for Acute Empyema. G. P. Muller, Philadelphia.—p. 15.
*Diagnosis and Treatment of Diaphragmatic Hernia. S. W. Harrington, Rochester, Minn.—p. 24.
*Hernia or Eventration of Diaphragm: Case. C. Eggers, New York.—p. 41.
*Importance of Respiratory Movements in Formation and Absorption of Pleural Fluids. R. C. Brock and E. A. Blair, St. Louis.—p. 50.
*Important Reflex Relationships Between Lungs and Other Viscera. F. M. Pottenger, Monrovia, Calif.—p. 75.

**Collateral Respiration.**—Van Allen and Jung describe experiments on dogs in which they found that collateral respiration was surprisingly efficient. A very small section of lung lobe proved to be sufficient for aeration of the whole. Continuation of aeration of the ligated division when the bronchi of the free section were flooded with viscid fluid (blood) can be explained only by supposing that the fluid was soon absorbed or disseminated to a large degree. Nevertheless, judging from the diffuse red color and distinct swelling of the injected lobule, it was evident that much of the fluid still remained in the peripheral airways. The normal capacity of even this small section of the lobe seems, therefore, to have been superabundant for maintaining the inflation. Also, a wide margin of safety was present as regards the amplitude of respiratory movements, since very shallow breathing afforded significant collateral exchange. The most effective obstacle to the function was inflammatory consolidation of the tissues at the border between the obstructed and free sections of the lobe, although here, too, there was remarkable tolerance. The tissues had to be almost completely consolidated before this factor alone eliminated interlobular exchange altogether. On the basis of their observation the authors conclude that interference with collateral respiration constitutes a necessary link in the sequence of events in the development of most instances of postoperative atelectasis. It is probable that every patient who develops severe bronchorrhea acquires bronchiolar obstruction of some degree and of significant duration, but atelectasis forms only when the collateral respiration is interfered with, as may well happen under the special circumstances attending convalescence from abdominal operations.

**Mortality of Operation for Acute Empyema.**—Muller reports a series of ninety-nine cases of acute empyema following pneumonia with six deaths (6.1 per cent). The death rate

in children under 2 years was 15.4 per cent; in adults over 50 it was 40 per cent. In children under 14 years it was 3.9 per cent. The mortality was largely affected by the age, state of the lung, infecting organism, and infective complications. The author believes that, except for aspiration, thoracotomy should be delayed until the metapneumonic stage. Drainage in many cases can be effected by interrib tube drainage. In others, rib resection may be necessary. Rib resection is not open drainage if properly managed. Closed drainage is the proper method in nearly all cases and will effect a cure in nearly every case.

**Diaphragmatic Hernia.** — According to Harrington, diaphragmatic hernia is relatively common. The symptoms of diaphragmatic hernia are usually definite and depend on the amount of mechanical interference with function of the organs involved. Diagnosis from clinical symptoms only is often difficult, because the syndrome often stimulates that of other organic diseases, the most common of which are cholecystitis, gastric ulcer and heart disease. Roentgenologic examination of the stomach is important in establishing a definite diagnosis. Operative replacement of the herniated viscera into the abdomen, and repair of the abnormal opening in the diaphragm, is the only treatment which insures complete relief of symptoms. Palliative phrenicotomy may be used in selected cases in which operation is contraindicated. Preliminary phrenicotomy is often of value in the repair of enlarged hernial openings if there has been considerable loss of structure. Of the forty-five surgical cases reported by the author, radical operation was performed in thirty-eight. There were five operative deaths and no recurrences.

**Hernia or Eventration of Diaphragm.** — Eggers calls attention to the fact that there are three main varieties of maldevelopment of the diaphragm: 1. A false congenital hernia is one without a sac. It is really a defect in the diaphragm due to failure of its various components to fuse properly. Abdominal contents may slip through this defect and lodge in the thorax without any covering. 2. A true congenital hernia, on the other hand, develops through a weak spot in an already formed diaphragm. As the abdominal contents slip into the chest, the peritoneum and pleural layers covering the weak spot are pushed ahead and form the sac of the hernia. This condition is much less common than false hernia. 3. Eventration of the diaphragm is comparatively rare. It may be congenital or acquired. There is no defect or hole in the diaphragm; it is simply relaxed and atrophic and bulges into the thorax often to the level of the third or fourth ribs. The congenital form is said to be due to failure of development of the muscle elements or of the phrenic nerve. Not much is really known about the underlying cause. The acquired type is occasionally seen as a complication of an acute infectious disease probably by the toxin acting on the nerve. It may also follow trauma to the neck in which the phrenic nerve is injured, as for instance during difficult labor. In either event one finds or expects to find a dome shaped bulge extending from the diaphragmatic attachments into the thorax. One would expect a uniform bulge, and one might reasonably think that the circumference at the base, meaning at the diaphragmatic attachments, would be larger than at the apex of the dome. In that case no constriction of the contents would occur. A case observed by the author did not quite correspond to such a picture. It was no doubt an eventration, but it seemed at the same time to be a hernia. The explanation seems to lie in the finding that apparently not all the elements of the diaphragm were involved in the process. It was the central tendon which had become stretched to form the large intrathoracic sac while the muscular elements were sufficiently developed to form a thick margin of what looked like a hernial ring. It appeared to be a localized eventration, or even a sacculated or diverticular eventration, due to partial paralysis or weakness of the diaphragm.

**Respiratory Movements.** — Brock and Blair describe an adaptation of the heart-lung preparation of Starling as modified by Daly, by means of which the exudate from each lung may be separately collected for a period of hours. In this way it was possible to show that in a living preparation the formation of a pleural effusion is dependent on the respiratory movements, an observation that corroborates the conclusions previously drawn by Graham from experiments which utilized dead lungs in an artificial thorax. Under direct visualization, fluid can be seen to drip from an edematous lung in expiration, and it is suggested that the rise in negative pressure during the act of inspiration fills the subpleural lymphatics, and when expiration follows, these filled lymphatics empty part of their contents into the pleural space. An edematous condition was produced (1) by pouring acidified fluid directly into the bronchi, (2) by means of passive congestion, and (3) by an active inflammatory process; namely, exposure to a dilute chlorine mixture. On the living intact animal, after an edematous lung has been produced either by methods 1 or 2, fluid can be collected by means of a cannula inserted into the pleural space. In this way it was possible to show that the rate of formation of the fluid is dependent on the force of the respiratory movements and the associated pressure changes. A quiet, easy respiration produces a small effusion; a deep, labored breathing causes a much more rapid accumulation. In addition to fluid of an inflammatory nature passing from the lung to the pleural space, it has been shown that an ordinary Ringer's solution, if introduced into the bronchi and alveoli, will, by the respiratory movements, be made to pass into the pleural cavity. Part of a broth culture of a streptococcus was added to Ringer's solution and introduced into the lung in the same way. The organisms were found to pass through the pleura with the fluid almost immediately and without the aid of cellular activity. It is suggested that this may be an important mode of infection in the body and may indeed be the point of entry of some of the septicemias of obscure origin. Just as the rate of formation of fluid is influenced by the character of the respiratory movements, so also is the rate of absorption of fluid affected. With quiet, easy respiration the absorption is slow; with deep, labored breathing it is much more rapid. A large accumulation of fluid with a consequent large surface area of contact is in any case absorbed at a slightly more rapid rate than a smaller collection; this increase is, however, in no way comparable with the marked effect of increase of the force of the respiratory movements.

**Reflex Relationships Between Lungs and Other Viscera.**—Pottenger states that vagal afferent fibers are distributed to all the abdominal organs except the colon and sigmoid, and there is some question about the proximal colon. Vagal centers in the medulla, however, may be reflexly influenced by afferent stimuli carried over the sacral nerve, which together with the afferent vagal fibers would bring the centers into reflex relationship with all important thoracic, abdominal and pelvic viscera. Afferent vagal impulses from any viscus may express reflex activity through the pulmonary efferent vagal fibers, and by so doing, if the conditions are favorable, produce bronchial constriction and bronchial shortening, and an altered secretion of the glands of the bronchial mucous membrane, usually an increase in amount. Furthermore, afferent vagal impulses acting on the respiratory center may produce inhibition of inspiration (which carries with it an inhibitory effect on inspiration). These are the conditions noted in pulmonary collapse. It is also known that while stimulation of an afferent vagal fiber may act on the respiratory center and produce either inspiration or expiration, it usually produces the latter. Thus the mechanism through which the stimuli necessary to produce reflex effects in the lungs act is present and could be called into play by operations which affect either the vagus, pelvic or any other mediating nerve. In operation on the important viscera below the diaphragm, ample opportunity for excessive irritation of both sympathetic and vagus afferent systems exists. In explanation of the vagal preponderance of action in the lung it must be remembered that the afferent sympathetic neurons from the abdominal organs which unite with efferent sympathetic neurons and antagonize vagal activity mediate in the lower six thoracic segments and not in the upper six from which the pulmonary sympathetics arise. Sympathetic reflexes from the abdominal viscera would express themselves by inhibiting muscular action in the gastro-intestinal tract, as in the ileus which now and then occurs. So while the pulmonary vagal fibers are stimulated the antagonistic sympathetics are not, and so a condition favorable to overvagal activity is brought about, which might be sufficient to produce the syndrome of collapse in certain individuals, particularly those of the vagotonic type.

## Journal of Urology, Baltimore

**26:** 499-597 (Oct.) 1931

*Urinary Diseases in Pregnancy: Consideration of Preventive and Therapeutic Measures in Treatment and Conservation Surgery. E. G. Crabtree and G. C. Prather, Boston.—p. 499.
*Ureteral Meatotomy: Clinical Evaluation. N. S. Moore, St. Louis.—p. 519.
Congenital Bilateral Ureterovesical Junction Stricture in Infants and Children. M. F. Campbell, New York.—p. 529.
*Empyema of Ureteral Stump. R. L. Dourmashkin, New York.—p. 553.
Leiomyoma of Bladder: Case. H. L. Kretschmer, Chicago.—p. 575.
Mobility of Trigon a Cause of Bladder Obstruction. T. N. Hepburn, Hartford, Conn.—p. 591.

**Urinary Diseases in Pregnancy.** — Crabtree and Prather emphasize as of extreme importance postdelivery care of urinary tract disease. From the hospital clinic all patients with urinary tract disease return to the outpatient clinic, where they are treated and followed until cured whether or not symptoms are present. Symptoms, especially those of cystitis, are extremely deceptive in pregnancy. Often urinary tract infection will exist for six months to a year after delivery before cystitis symptoms develop. The reason for this is not clear. On return to the outpatient clinic, the patients with surgical diseases are referred elsewhere for treatment. All cystoscopic treatment is given in the clinic. The ureters are seldom dilated except for definite stricture. Pelvic lavage is not often used in the first three months post partum. Infection cases are kept on formaldehyde drugs and increased fluids, and the social service department helps to arrange family duties so that the patient can get sufficient rest to enable her to return to health and strength as soon as possible. Most previously normal patients are bacterially well by the end of the fourth month. If pyuria or bacilluria persists beyond that time, complete cystoscopic study is made. It is in this group that many interesting anomalies are found together with cases suitable for plastic surgery and other corrective measures. A certain group of cases is found in which the patients show only atony from extreme degrees of overdistention. These recover in longer periods of time. Other pregnancies before complete recovery of the infection has taken place are undesirable.

**Ureteral Meatotomy.** — From a clinical and roentgenographic study of about seventy-five cases in which ureteral meatotomy was performed covering a period of seven years, Moore draws the following conclusions: 1. The operation, though comparatively minor, is technical and deserves just consideration. 2. When properly applied, the high frequency meatome is effectual and safe. It is possible to continue work higher up the ureter at the same sitting. There should be no alarming complications. There was no stricture formation following the operation in any of the cases observed. The author has found a number of cases in which the ureteral opening was amply large to admit number 7 to 9 catheters, after the passage of which there was temporary relief. The same patients have shown more permanent, if not definitely permanent, relief following a good wide incision of the opening. In a clinical and roentgenographic study of a series of cases it was impossible to find any symptoms or signs of regurgitation at any time following the operation.

**Empyema of Ureteral Stump.**—Dourmashkin reports four cases of empyema of the ureteral stump, which is a collection of thick pus within a dilated ureteral stump following incomplete ureterectomy. It differs from pyo-ureter in that the latter denotes pus mixed with urine coming from a kidney above. Of course, it is possible in cases of suppuration of the ureteral stump for the pus to be mixed with the regurgitated bladder urine secreted by the remaining kidney. Such was the case in at least one of the patients, in whom the aspirated purulent contents of the empyemal sac contained urea. That persistence of pyuria may follow nontuberculous nephrectomies in which a diseased ureter was not carefully followed down to the bladder leading to the empyema of the stump is a condition which has not been sufficiently emphasized in the literature. The comparative infrequency of ureteral stump suppuration following nephrectomies on human beings would indicate that while normal ureters do retain their patency they do not, however, exhibit a tendency toward infection. The local pathologic changes consist in a marked periureteritis, dilatation of the ureter and firm adhesions of the stump to the surrounding tissues. Absence of local symptomatology was the feature in all the cases in the author's series. None of the patients had symptoms of bladder irritability. Cystoscopy uniformly showed the escape of thick tapelike masses of pus from the orifice (or orifices) on the affected side. The latter was definitely stenosed in two cases. In one patient a ureterocele was present with two ureteral orifices, each leading to an empyematous sac. The escape of pus from the ureteral orifice on the nephrectomized side, as visualized by the cystoscope, does not necessarily indicate the presence of a dilated ureter filled with pus. To complete the diagnosis it is essential to outline the ureteral stump with an opaque solution injected into the stump. Cases that are free of vesical or other local symptoms and do not show a tendency to extension of the infection into the remaining kidney should be left alone. The possibility of involvement of the remaining kidney should always be borne in mind. It is for this reason that the infected stump should be excised in recent cases which have not yielded to cystoscopic treatment and in cases of persistent cystitis. The extirpation of the sac is generally a difficult procedure because the sac is firmly embedded in the pelvis and is adherent to the pelvic vessels.

## Michigan State M. Soc. Journal, Grand Rapids

**30:** 739-808 (Oct.) 1931

Certain Principles in Treatment of Obstructive Jaundice. W. Walters, Rochester, Minn.—p. 739.
Granulocytopenia, Agranulocytic Angina and Related Blood Dyscrasia. C. E. Stellhorn and A. L. Amolsch, Detroit.—p. 743.
Newer Phases of Childhood Tuberculosis. H. C. Metzger, Detroit.—p. 760.
*Incidence of Heart Disease in Rheumatic Fever. W. J. Wilson, Detroit.—p. 765.
Carcinoma of Larynx. A. C. Furstenberg, Ann Arbor.—p. 770.
Anesthesia in Head and Neck Surgery: Various Types and Methods. R. Maurits, Grand Rapids.—p. 776.
*Significance of Cardiac Pain. H. A. Freund and W. B. Cooksey, Detroit.—p. 781.
Large-Holed Head Mirror. E. Amberg, Detroit.—p. 784.

**Heart Disease in Rheumatic Fever.**—Wilson emphasizes the fact that, although acute rheumatic fever is one of the chief causative agents of cardiac disease, the latter may not be apparent at the time of recession of joint symptoms, so that all patients need careful observation for at least three months following such an attack and six months periodic physical examinations thereafter. Patients should not be discharged from the hospital unless the white blood count is normal. All patients should be tonsillectomized at a reasonable period following the acute attack of rheumatic fever, if there is the least sign of tonsillar infection. Immediate apparent effects of rheumatic fever are less important than late results, which often cause marked valvular deformity, more common in the mitral, quite common in the aortic, and occasionally in the other valves.

**Cardiac Pain.**—According to Freund and Cooksey, the cardinal points on which a true differential diagnosis of cardiac pain may be made are as follows: A careful history of the nature, duration, inciting factor and location of the pain, with its possible radiation, is of major importance. It is often possible, without touching the patient, to make a diagnosis of cardiac pain on the basis of a careful history alone. One is frequently surprised by the gross neglect of this essential detail. In the physical examination, all the signs of arteriosclerosis should be carefully sought, for, although coronary thrombosis and angina pectoris often do occur without demonstrable signs of a generalized arteriosclerosis, they are most commonly found in arteriosclerotic individuals. The blood pressure, with especial reference to the diastolic reading, is a highly important detail. Well over fifty of the patients with coronary thrombosis had a previous hypertension, and the association of angina pectoris with simple coronary sclerosis and a previous or present hypertension is well known. In coronary thrombosis, possibly the one most important sign is a blood pressure below 100 systolic or a sudden fall of blood pressure below a previous known level. The authors have been able to make a diagnosis of true cardiac pain on this basis alone, in two atypical cases of coronary thrombosis. While the results of physical examination of the heart and lungs sometimes closely approach the normal, a cardiac dilatation, a muffled first heart sound, and râles at the

base of the lungs are of extreme importance in accurate diagnosis. The electrocardiograph has perhaps done more to clarify the field of cardiac pain than almost any other factor. While in the present state of knowledge one must admit that coronary sclerosis may be present in severe degree without alteration in the electrocardiogram being present, nevertheless in many cases of simple coronary sclerosis electrocardiographic evidence is obtainable. During the last two years the authors followed closely nineteen cases of coronary thrombosis. Because of the availability of the modern portable electrocardiograph, they have been able to make careful and repeated electrocardiographic studies in these nineteen cases. There has not been a single case in which, sooner or later, definite evidence of coronary thrombosis with cardiac infarction was not found, electrocardiographically. In some cases the evidence was obtained as early as one hour after the complete occlusion; in one case such evidence did not appear until the end of forty-four hours after the occlusion. In other cases, several days had elapsed before the initial tracing was made. All these nineteen cases have been verified by subsequent history or by necropsy.

## Minnesota Medicine, St. Paul

**14:** 879-942 (Oct.) 1931

*Cardiology and the General Practitioner. D. Luten, St. Louis.—p. 879.
Prenatal Care and Careful Conduct of Delivery. M. C. Bergheim, Hawley.—p. 884.
Recurring Preeclamptic Toxemia: Its Clinical Significance. R. D. Mussey, Rochester.—p. 889.
Accidents of Labor. J. R. Manley, Duluth.—p. 892.
Allergy and Pneumococcus Lobar Pneumonia. H. A. Reimann, Minneapolis.—p. 898.
Vincent's Disease. R. I. Rizer, Minneapolis.—p. 901.
Founding of Ramsey County Medical Society. J. M. Armstrong, St. Paul.—p. 904.
Ramsey County Medical Society's Library. H. L. Taylor, St. Paul.—p. 906.
Treatment of Anal Fissures. H. F. Bayard, Minneapolis.—p. 910.
Diverticulitis of Colon and Sigmoid: Its Complications and Treatment. A. E. Benjamin, Minneapolis.—p. 912.
Proposal of Wholesale Passive Immunization Against Poliomyelitis Epidemics. J. C. McKinley, Minneapolis.—p. 921.

**Cardiology.**—Luten believes that simple tachycardia in many instances represents an adjustment of the circulation to pathologic processes and should not receive special therapeutic consideration. Therapy in such cases obviously should be directed not toward slowing the heart but toward mitigating the cause of the tachycardia. Mere slowing may indeed on occasion be harmful. The initiation of direct measures to lessen the heart rate in hemorrhage, in pneumonia, in fright or in exophthalmic goiter would appear as illogical as the taking of similar means to slow the respiratory rate in the same circumstances; as illogical as trying to slow it after exercise. The assumption is widespread that tachycardia itself is attended by serious danger if long continued; that the heart cannot long withstand rapid beating. This conception has received an emphasis which appears to be unwarranted. The heart is physiologically adapted to rapid action. Increase in rate alone does impose added burden, but a normal heart bears the burden well. Furthermore, compensatory adjustments usually supervene. Even a diseased heart usually appears to suffer little impairment of function from tachycardia of considerable extent, provided the muscle is activated in normal fashion; i. e., provided the tachycardia originates at the normal pacemaker. In a diseased heart obviously the danger of fatigue from tachycardia may be enhanced, but even in such cases compensatory adjustments in stroke output and in vascular tension usually relieve the heart of this added danger. In many instances, indeed, the accelerated action itself appears to be a compensatory adjustment, tachycardia representing the effect of circulatory impairment, not its cause. The chief indication of therapy in such cases should be the protection of the heart from further danger, not an unphysiologic adaption to injury already received. Not only is it inadvisable, in many instances, to slow the rate in simple tachycardia, but in adults it is rarely possible by therapeutic means to do so. In therapeutic dosage digitalis rarely, if ever, in adults causes slowing of consequence by direct action on the cardio-inhibitory apparatus. The physician who pushes digitalis in such an attempt, even if slowing is desirable, subjects his patient to the serious danger of digitalis intoxication. Abnormal rhythms in the vast majority of instances do not require special therapeutic measures. Some of them frequently are valuable hints in diagnosis and useful guides in therapy. They call for general examination and treatment, not merely for examination of the heart and cardiac drugs. The abnormal rhythm itself is rarely dangerous; it is frequently annoying. Special treatment, therefore, when indicated, is rarely an emergency measure. In most instances a complete history is more important than a complete cardiac examination.

## New England Journal of Medicine, Boston

**205:** 747-792 (Oct. 15) 1931

*Myelotomy in Treatment of Syringomyelia. T. J. Putman and D. Munro, Boston.—p. 747.
*Sarcoma of Bladder in Children: Case. E. R. Mintz, Boston.—p. 756.
*Results of Use of Stramonium Datura in Parkinson's Disease and Postencephalitic Parkinsonism. O. J. Menard and L. M. Hurxthal, Boston.—p. 759.
Progress in Laryngology. L. A. Schall, Boston.—p. 763.

**Myelotomy in Syringomyelia.**—Putnam and Munro present four cases of syringomyelia in which the patients were treated by myelotomy. One patient showed practically no improvement. Immediate improvement was slight in two others, but striking in one instance. From a survey of the literature it appears that the operation has had a favorable, but not curative, result in the great majority of cases. In some instances the results have been permanent, in others the disease has progressed. Symptoms have apparently not been increased by operation. Only one fatality is recorded in cases reported since 1926. Roentgen treatment probably acts by arresting gliosis, operation by relieving pressure. Sometimes one, sometimes the other, may be more effective. Radiation should always be employed as an adjunct to operation. Pending further experience, the authors believe that operation should be reserved for patients who are not relieved by roentgen treatment, or who have root-pains, or spinal block or who are incapacitated by the disease. To these it offers real hope of improvement.

**Sarcoma of Bladder.**—Mintz reports a case of sarcoma of the bladder in a boy aged 5 years. He states that approximately fifty-five authentic cases of sarcoma of the bladder have been reported in children under 5 years of age. The etiology is obscure. The pathologic changes are varied. All histoid elements have been reported. Hematuria is usually not a presenting symptom. Frequency, dribbling, acute retention and bed-wetting are common symptoms. Recurrences are frequent and early. Metastases are not common. The course is invariably fatal. Operation seems to hasten death. In all the recent cases, diagnosis was made by cystoscopy. Partial excision of the bladder wall, excision of the tumor and diathermy have been tried with little success. Total cystectomy with resection of the urethra is the only hope for cure.

**Stramonium in Parkinson's Disease.**—From their observations in twenty-two cases, Menard and Hurxthal conclude that stramonium datura in adequate dosage is a helpful drug in attempts to alleviate some of the distressing symptoms of either Parkinson's disease or postencephalitic parkinsonism. They believe that it should be tried in all such cases.

**205:** 793-840 (Oct. 22) 1931

*Gastro-Intestinal Hemorrhage in Disease of Gallbladder. F. W. White and I. R. Jankelson, Boston.—p. 793.
Treatment of Acute Empyema and Pulmonary Abscess. W. Whittemore, Boston.—p. 797.
*Branchial Cysts and Fistulas. W. M. Shedden, Boston.—p. 800.
*New Treatment for Acute Bursitis. T. K. Richards, Boston.—p. 812.
Progress in Psychiatry. I. H. Coriat, Boston.—p. 814.

**Hemorrhage in Disease of Gallbladder.**—According to White and Jankelson, severe gastro-intestinal hemorrhage in disease of the gallbladder is rare, but the possibility is important in diagnosis. Such cases are apt to be mistaken for peptic ulcer, especially if the history is doubtful and if adhesions cause some deformity of the duodenum or pylorus. In cases of hematemesis with jaundice, the possibility of gallbladder disease should be considered. Coincident ulcer and gallstones are not rare and may be misleading; the ulcer may heal after hemorrhage and only gallstones be found at a later roentgen examination. Jaundice was not an important factor in causing the hemorrhage in a group of cases studied by the authors. Hepatitis associated with gallbladder disease may be a factor, but

the evidence from the cases studied is not clear. In a few cases the hemorrhage may be explained by perforation of the gallbladder, fistula formation, or hemorrhagic infarction of the gallbladder; in the large majority, Naunyn's theory seems best, that toxins in the blood coming from the infected gallbladder cause bleeding from the mucosa of the stomach or duodenum, as occurs in cases of essential hematuria or epistaxis.

**Branchial Cysts and Fistulas.**—Shedden presents a summary of the modern concept of the embryology of "branchial" cysts and fistulas. He further shows, in the study of forty-two cases of branchial cyst and nine cases of fistula, that: (1) they occur in young adult life; (2) the disease exists a long time before the patient demands relief because it progresses slowly and pain appears late, if at all, and usually only from secondary infection; (3) tuberculosis rarely causes secondary infection; (4) it does not affect the patient's general health; (5) the diagnosis should not be difficult if one keeps the entity in mind, and (6) the treatment involves complete removal of the pathologic process.

**Treatment for Acute Bursitis.**—While treating a patient for boils who also had symptoms consistent with a mildly inflamed subacromial bursa, Richards gave intramuscular injections of iron-arsenic compounds along with other forms of therapy. This particular patient was a chemist by profession, familiar with drugs and unusually observant of his own reactions to them. After each injection of the iron-arsenic compound he volunteered the information that this bursa felt better. Shortly after this the bursa became more acute and it was decided to try the iron-arsenic preparations intravenously. Accordingly, iron cacodylate was chosen because of its apparently less severe reaction and 1 cc., or one-fifth grain, was given. The dose was repeated every third day, increasing the amount by 1 cc. until 5 cc., or 1 grain, was given. Following the first injection there was a distinct improvement; the shoulder was less painful and its motions were freer. At the end of five injections the acute symptoms had disappeared and there was no restriction of the shoulder motions. The result was so startling that other patients suffering from acute bursitis were asked if they were willing to try these injections—all being told beforehand that there was no adequate explanation for the drug working. In all there were approximately seventy cases of acute bursitis—the subacromial, subscapular and infrapatellar bursae being involved. In many cases of acute bursitis uncomplicated by a focus of infection elsewhere in the body there was a lessening of the acute symptoms within three or four hours following the first injection. The vast majority of the patients returned to their normal activities or play with complete absence of symptoms and no restrictions of motions, from ten to twenty-one days following the first intravenous injection. In this series all other forms of treatment were avoided so as not to complicate the picture of recovery. There was no restriction of use beyond that of pain. In other words, patients were told to use their arms as much as they pleased or could. Both iron-arsenite and iron cacodylate were employed, but the iron-arsenite seemed to be more frequently accompanied by immediate severe reactions, which were not present when the cacodylate was used. Accordingly, the use of the iron-arsenite was abandoned and all injections were made with the iron cacodylate. The author gives three case histories to illustrate the effectiveness of this form of treatment of acute bursitis.

## Ohio State Medical Journal, Columbus

**27:** 761-840 (Oct.) 1931

Fractures of Ankle. R. G. Carothers, Cincinnati.—p. 781.
*Clinical and Pathologic Study of Seventy Cases of Mitral Stenosis. I. H. Einsel, H. S. Feil and C. S. Stone, Cleveland.—p. 783.
Pathology of One Hundred Consecutive Tonsils. H. L. Reinhart, Columbus.—p. 786.
Use and Abuse of Clinic Conferences in Health Department. F. R. Dew, Clairsville.—p. 789.
Ohio Mental Hygiene Needs. E. A. North, Cincinnati.—p. 791.
Some Phases of Poliomyelitis. E. G. Horton, Columbus.—p. 796.
Clinical Laboratory Findings in Thyroid Diseases: Brief Review of Literature and of Starling-Loving Hospital Records. Edith M. Miller, Columbus.—p. 799.

**Mitral Stenosis.**—In a clinical pathologic review of seventy cases of mitral stenosis, Einsel and his associates found that fifty-six, or 80 per cent, of the patients died as the result of cardiac disability; i. e., congestive failure, embolism, and subacute bacterial endocarditis. The period of invalidism with failure varied from one month to eight years, with an average duration of twenty-two months. Subacute bacterial endocarditis caused death in three instances (4.2 per cent). Auricular fibrillation was present during the hospital admission in forty-one cases of the failure group, or 58 per cent. The heart weights varied from somewhat below normal to 800 Gm. and did not definitely depend on the combined valve lesion. Tricuspid stenosis could be predicted in 39 per cent of the cases with mitral stenosis and aortic valvulitis.

## Philippine Islands Med. Association Journal, Manila

**11:** 345-384 (Sept.) 1931

Preventive Medicine in Retrospect. P. F. Russell, Manila, P. I.—p. 345.
*Blood Viscosity in Normal Filipinos. J. S. Hilario, Manila, P. I.—p. 361.
Value of Botelho Reaction in Cases of Malignant Tumors. F. Ira-Concepción, Santo Tomas, P. I.—p. 365.
Cardiac Beriberi in Infants. J. Albert.—p. 367.
Cardiac Beriberi in Nursing Infants. J. Albert.—p. 368.

**Blood Viscosity.**—Hilario's material consisted of about 100 males recruited from among medical students of 20 to 30 years of age, and apparently in good health. Those who, after the viscosity test had been made, became ill were discarded, so that the figures noted represent the values obtained from those who were apparently healthy at the time of the examination and afterward. The test was made in most of the cases three hours after luncheon. It was found that the blood viscosity averaged 5.18, the maximum being 6.36 and the minimum 3.98. These figures may be slightly higher than usual, owing to the finger massage applied prior to the pricking of the finger tip in an effort to get enough blood to fill the viscosimeter tube up to the 0 mark. The relatively better nutrition of the subjects included in this series, compared with the state of nourishment of the general masses, may be held partly responsible for the slightly increased figures.

## Public Health Reports, Washington, D. C.

**46:** 2539-2599 (Oct. 23) 1931

*Effect of Hemolytic Streptococci and Their Products on Leukocytes. Alice C. Evans.—p. 2539.
Rat-Flea Survey of Port of St. Thomas, Virgin Islands. E. H. Carnes.—p. 2558.

**46:** 2601-2661 (Oct. 30) 1931

Dental Decay and Corrections Among School Children of Different Ages. Amanda L. Stoughton and Verna Thornhill.—p. 2608.

**Effect of Hemolytic Streptococci on Leukocytes.**—Evans summarizes thus the results of experiments on the effect of hemolytic streptococci and their products on leukocytes: In filtrates of broth cultures of Streptococcus scarlatinae there is a trace of a substance toxic for leukocytes which can be detected by the bioscopic test but not by the phagocytic test or by the deterioration of cells as shown in stained microscopic preparations. The addition of kidney tissue, blood serum, or washed leukocytes to broth cultures does not increase the production of the leukocidic substance. On the other hand, the addition of washed erythrocytes to broth cultures definitely promotes its increase. The thermolability of the trace of leukocidic substance in filtrate of broth culture is the same as that of the more abundant leukocidic substance in filtrate of culture in broth plus erythrocytes. Presumably the two substances are identical. A specific neutralizing agent for the leukocidic substance could not be demonstrated in normal or immune serum. Two lines of evidence are offered which show that the leukocidic substance is not identical with hemolysin. They differ in thermolability. There is no correlation of toxicity for the two types of blood cells manifest by filtrates of cultures grown under varying conditions. The decrease of leukocidic substance in purified and concentrated skin toxin indicates that leukocidic substance and skin toxin are not identical.

## South Carolina Medical Assn. Journal, Greenville

**27:** 245-271 (Oct.) 1931

Aid of Roentgen-Ray Films in Confirming Diagnosis of Chest Conditions. W. G. Byerly, State Park.—p. 250.
Selective Sterilization. B. O. Whitten, Clinton.—p. 255.
Spontaneous Rupture of Hydronephrotic Kidney; Case. D. Jennings and L. R. Kirkpatrick, Bennettsville.—p. 259.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

**2:** 733-786 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 733.
*Toxic Goiter: Course of Disease, and Its Treatment. F. R. Fraser.—p. 739.
Psychic Pain and Psychoses. H. Devine.—p. 742.
*Puerperal Sepsis: Importance of Early Treatment. A. R. Hobbs.—p. 744.
Some Common Complaints Amenable to Spinal Treatment. T. Marlin.—p. 746.
Two Cases of Sarcoma Following Known Trauma. D. H. Haler.—p. 748.

**Toxic Goiter.**—Fraser calls attention to the fact that there are patients, usually young women, who, with no evidence of previous thyroid trouble, develop the typical picture of exophthalmic goiter, and in the course of a few months, or longer, recover apparently completely. There are others, with a similar onset and initial recovery, who relapse, perhaps repeatedly. There are others who never quite recover but in whom the condition subsides only to light up again and again with greater or less severity over a number of years. In those with repeated relapses or exacerbations the thyroid is usually found to be nodular. There are still other patients, who, when they come under observation for the first time because of toxic symptoms, present a nodular gland. It is known that the gland responds to physiologic stimuli, such as puberty, pregnancy and lactation, by increased activity; and it responds in a similar way to pathologic stimuli, such as infections; but in both conditions signs of thyroid intoxication are rare, and the gland usually returns by involution to a normal condition. If the involution is not perfect, and areas of hyperinvolution and of hypoinvolution result on repeated occasions without the occurrence of symptoms of intoxication, a nodular gland might be expected to develop in time. This accounts for those patients in whom such a gland is found on the first appearance of toxic phenomena. The absence of nodules and of fibrosis is not evidence that hypertrophy, hyperplasia and involution have not occurred, but a nodular goiter is good evidence of a past history in which the thyroid has had to respond to stimuli and then has involuted, perhaps repeatedly and over a number of years. These nodules are not adenomas, but true adenomas may occur, though much more rarely; and pathologic processes, other than those that result from the involutionary changes described by Rienhoff, are encountered in glands associated with toxic goiter. The author believes that patients with thyroid intoxication, or toxic goiter, should be treated as early as possible by removing any causal factors that can be discovered, by the administration of iodine, and by reduction of the amount of functioning thyroid tissue. This can be accomplished with the greatest certainty by operative treatment; but if a surgeon with special skill and experience in such cases is not available, treatment by roentgen rays or radium should be tried while the case is still mild and the patient able to work.

**Puerperal Sepsis.**—In his experience, Hobbs finds it exceptional for women with puerperal sepsis to develop pyrexia at the outset. Many patients have offensive lochia, red lochia, and purulent discharge and yet for some days remain entirely apyrexial. Further, while severe cases of puerperal inflammation are due to bacterial invasion of the raw uterine surfaces, there is a much greater number in which inflammatory changes occur as a result, purely, of the retention of placental fragments and blood clot, and those are the cases that frequently lead to chronic invalidism among women. Unfortunately, little or nothing is done at the very time when much could be done, and the most favorable opportunity to deal with them is lost. Following labor or miscarriage, much blood and serum, together with fragments of placenta, normally continue to escape from the uterus for several days. Anything that interferes with the natural drainage will undoubtedly give rise to signs and symptoms; one must learn to recognize these, for they are certainly the earliest heralds of possible trouble later. A full appreciation of their significance will enable one to begin early and efficient treatment, by which alone one can hope to reduce maternal mortality.

### Glasgow Medical Journal

**35:** 201-256 (Oct.) 1931

*Certain Preliminary Observations on Treatment of Anemia by Tryptophan and Histidine. D. P. Cuthbertson, J. Fleming and E. M. K. Stevenson.—p. 201.
State of Capillaries in Certain Pathologic Lesions and Their Condition in Cases of Sudden Death. Jean W. Symington.—p. 210.

**Treatment of Anemia by Tryptophan and Histidine.**—Cuthbertson and his associates state that tryptophan and histidine injections produced an early but small reticulocyte response in two cases of pernicious anemia. There was no appreciable increase in the hemoglobin or red cell count. In one case the injections were given intravenously and in the other subcutaneously. In two cases of "secondary" anemia in which the patients had had prolonged courses of iron, arsenic and liver without benefit, tryptophan and histidine caused a moderate reticulocyte response in one case, but no improvement in the blood count in either. Both patients, however, responded rapidly to subsequent iron and arsenic. Subjective improvement during the course of injections was noted in three of the four cases. The injections caused little discomfort and appeared to be harmless. While the cases described are "insufficient" in number to afford conclusive evidence in support of the theory of Fontès and Thivolle, they indicate that these amino-acids have some stimulant action on the hematopoietic tissue.

### Journal Obst. & Gynec. of Brit. Empire, Manchester

**38:** 495-742 (Autumn) 1931

Induction of Labor by Puncture of Membranes. Report of Series of Cases and Consideration of Cause of Onset of Labor. G. Fitzgibbon.—p. 495.
Lower Uterine Segment Cesarean Section. J. St. G. Wilson.—p. 504.
Anatomy and Physiology of Upper Urinary Tract in Pregnancy, and Their Relation to Pyelitis. D. Baird.—p. 516.
*Relation Between Blood Extravasation and Albuminuria. O'D. Browne.—p. 525.
Low-Back Pain in Gynecologic Practice Due to Lumbosacral and Sacro-Iliac Strain. J. Young.—p. 535.
*Id. W. A. Cochrane.—p. 538.
Radiotherapy and Fistula Formation in Cervical Carcinoma. G. I. Strachan.—p. 542.
Birth Control Studies. 1. On Ingress of Semen into Uterus During Coitus. H. M. Carleton and H. Florey.—p. 550.
Id.: 2. Observations on Effects of Common Contraceptives on Vaginal and Uterine Mucosae. H. M. Carleton and H. Florey.—p. 555.
Nature of Functional Uterine Bleedings. D. J. Cannon.—p. 565.
Investigation into Part Played by Maternal Syphilis in Causation of Fetal and Infant Death and Effects of Antenatal Treatment. E. J. Pye-Smith.—p. 578.
Chondrosarcoma of Uterus. S. J. Hartfall.—p. 593.
Pregnancy and Diabetes, with Especial Reference to Carbohydrate Metabolism of Placenta. I. M. Rabinowitch.—p. 601.
Aberrant Ovarian Tissue in Round Ligament of Uterus. Jean McNeill.—p. 608.
Case of Early Carcinomatous Change in Hyperplastic Endometrium. J. Bamforth.—p. 614.

**Blood Extravasation and Albuminuria.**—According to Browne, damaged tissue, or altered blood, liberates some toxic substance which is known to act in minute quantities and with great rapidity. All authorities are agreed that uteroplacental changes, under different names, are almost invariably found in association with some kidney lesion. Albuminuria develops with great rapidity subsequent to blood extravasation and tissue injury in different parts of the body. Removal of the toxin producing extravasation is followed by rapid recovery of the endothelial damage. These four facts force one to the conclusion that albuminuria undoubtedly develops subsequent to the reabsorption of some toxic material. This can occur as the result of an extravasation in any part of the body.

**Low-Back Pain in Gynecologic Practice.**—Cochrane believes that in low-back pain due to lumbosacral and sacroiliac strain the aim of treatment should be to restore the back and the body as a whole to a state of good posture, so that correct function may then be possible. The means employed are rest, massage, heat, reeducation of the muscles, and support of the spine and pelvis. The patient is put to bed for three weeks, on a very firm mattress. She lies on the back with a low pillow beneath the head and knees. Thrice daily, for half an hour after meals, she is put into a position of what is called superextension. A pillow is placed beneath the chest and the hands are clasped behind the head. The effect of this is to throw the chest forward and, by leaving the lumbar spine

unsupported, to cause flattening of the lumbar spine. The patient is turned over and made to lie face down on a pillow placed lengthwise beneath the trunk for half an hour following the superextension position, and hot fomentations are applied to the lower part of the back. In a few days' time the back is massaged and the patient is taught a simple list of exercises to be performed when lying down to teach her how to obtain active, conscious control of the muscles of the trunk and pelvis; thus she is taught to correct the lordosis. When she gets up, the remedial exercises are continued and should soon result in an individual whose posture in standing, sitting and walking is habitually correct. To help the patient to maintain the correct position a strong, back-lacing corset is often required for a time, until the muscles are strong enough to do the work for themselves.

## Journal of Physiology, London

**73:** 115-218 (Oct. 22) 1931

*Variations in Acidity of Gastric Juice During Secretion. C. Bolton and G. W. Goodhart.—p. 115.
Observations on Assay of Comb-Growth Promoting Hormone. J. S. S. Blyth, E. C. Dodds and E. J. Gallimore.—p. 136.
*Sympathetic Innervation of Stomach: III. Interaction of Vagus and Sympathetic Nerves. B. A. McSwiney and J. M. Robson.—p. 141.
Control of Glomerular Pressure by Vascular Changes Within Isolated Mammalian Kidney, Demonstrated by Actions of Adrenalin. F. R. Winton.—p. 151.
Absorption of Glucose from Alimentary Canal. H. E. Magee and E. Reid.—p. 163.
Stage of Water in Mammalian Tissues. Mary Hetherington.—p. 184.
Has Muscular Substance Longer Chronaxia Than Nervous Substance? L. Lapicque.—p. 189.
Growth Effect and Toxicity of Some Halogen Derivatives of Isomeric Monohydroxyphenylalanines. P. G. Marshall.—p. 214.

**Gastric Juice Acidity.**—On the basis of their experimental observations on cats, Bolton and Goodhart conclude that the average acidity of normal gastric juice at the height of secretion from the whole stomach is 0.134 normal (0.49 per cent) and the inorganic chloride 0.07 per cent. These figures, however, vary to some degree in different animals even with the same stimulus, but the total chloride percentage is almost constant. In all animals as the secretion is beginning its acidity is on the average 0.082 normal (0.3 per cent); that is to say, below the normal average by 0.052 normal (0.19 per cent) for the first few minutes, and correspondingly the neutral chloride is in excess of the average by the same amount. This low acidity is in some measure due to escape of neutral chloride at the expense of the acid. When fully established after this initial phase the acidity remains constant, showing a slight fall in about half the experimental animals when the secretion is stopping. This final fall in acidity, when it occurs, is insignificant and only about a third of that which is invariably present in the initial phase. There is a corresponding small rise in the neutral chloride, owing to escape of this substance at the expense of the acid. It is therefore only in the higher reaches of acidity that any variation is observable, and then only when small amounts of juice are being secreted. So long as a few drops are secreted the acidity is high and the juice is not transformed into a neutral diluting fluid, such as could lower the acidity of the gastric contents. The stomach has no power of regulating the acidity of the gastric juice either by its final transformation into a neutral solution or by the addition of pyloric juice, which appears to play no greater part in this respect than the mucous secretion of the body of the stomach. When any substantial reduction in acidity of the gastric juice occurs, the percentage of total chloride falls, showing neutralization and dilution by mucus, and not replacement of acid by neutral chloride. Mucus is secreted in varying amounts during the flow of gastric juice and is most in evidence at the end of the flow. It is alkaline in reaction to about 0.039 normal (0.14 per cent) and contains from 0.28 to 0.36 per cent inorganic chloride and with strong stimulation up to 0.5 per cent. The mucus can produce an effect on only small quantities of gastric juice, such as occur at the beginning and end of secretion, but there is no great reduction in acidity at the end until the flow of juice has actually stopped, when the acidity drops to zero and alkalinity develops. The mucus both dilutes and neutralizes the acid of the juice but only dilutes the total chloride, and this to a less extent than it does the acid because mucus already contains inorganic chloride. The unaided stomach has no means of lowering the acidity of the gastric juice secreted into it unless the volume of the latter has diminished to a minute quantity at the end of secretion, and even then there is no great reduction until the secretion has actually stopped. This effect is due to the alkaline mucus secreted by the stomach. The authors noted that the gastric secretion continued with undiminished acidity although it was allowed to accumulate in the stomach, thus disproving the hypothesis that the presence of a certain concentration of acid in the stomach inhibits the further secretion of acid.

**Stomach Innervation.**—McSwiney and Robson made preparations of smooth muscle obtained from the fundus of the stomach with a dual innervation of vagus and sympathetic nerves. They describe experiments which demonstrate that the response of smooth muscle to stimulation of the periarterial nerves may be reversed by stimulation of the vagus nerves. Inhibition of the vagus response produced by stimulation of the periarterial nerves was also demonstrated. The duration and factors regulating the inhibitory effect were investigated. Evidence is advanced to show that the type of response resulting from nerve stimulation is determined by the liberation of chemical substances in the periphery.

## Lancet, London

**2:** 887-944 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 887.
*Serum Therapy of Plague. B. P. B. Naidu and F. P. Mackie.—p. 893.
Asphyxial Element in Gas-Oxygen Anesthesia. A. H. Macklin.—p. 897.
Harmalol in Treatment of Parkinsonism. H. A. Cooper and J. A. Gunn.—p. 901.

**Serum Therapy of Plague.**—Naidu and Mackie have produced a more potent antiplague serum than any that has theretofore been available. In preparing this, attention was paid to three points which are considered to be of importance—the choice of the animal, the virulence of the strain used, and the method of immunization. Cattle were chosen rather than horses, on the ground that they are naturally susceptible to organisms of the pasteurella group. A highly virulent strain of Bacillus pestis was used in the production of serum. The serum of immunized cattle was found to possess good agglutinative power and to be possessed of antitoxic as well as antibacterial properties. The use of this serum as a curative measure resulted in the saving of the lives of a high proportion of rats and rabbits as compared with the controls. In all these desirable properties the serum was shown to be far superior to any other antiplague serum tested. When it was applied to a small human epidemic, the results were promising. Out of a total of seventy-six cases, forty-three patients were treated with serum, generally in one dose, and of these fifteen died, while of the controls (alternate cases) twenty-three out of thirty-three died. Several patients with advanced Bacillus pestis septicemia recovered, and seven out of eight with early septicemia survived, as compared with an invariable fatality in the former group and 75 per cent mortality in the latter.

## Journal de Chirurgie, Paris

**38:** 465-624 (Oct.) 1931

Pathogenesis of Postoperative Peptic Ulcer. R. Leriche.—p. 465.
*Treatment of Postoperative Peptic Ulcer. A. Gosset.—p. 491.
Immediate Surgical Treatment of Open Fractures of Leg. G. Roux and J. Sénèque.—p. 515.
Pneumococcus Peritonitis. A. Bréchot and Nové-Josserand.—p. 533.

**Treatment of Postoperative Peptic Ulcer.**—Gosset asserts that postoperative peptic ulcer is relatively rare (2 to 3 per cent of cases), but as it is a serious complication and often extremely difficult to treat, it should be given attention. After a review of the cases from the literature and a discussion of his own observations, the author concludes as follows: The rules for surgical treatment are dominated by the tendency of peptic ulcer to recur, a tendency most marked in young patients and in those in whom the original ulcer was duodenal. In case of a peptic ulcer subsequent to gastro-enterostomy, one can try anatomic restoration, but that operation is insufficient unless one performs a complementary plastic operation on the pylorus. The late results of gastro-enterostomy alone demonstrate the frequency of recurrences of duodenal ulcer. Pyloroplasty to be efficacious should include resection

of two thirds of the pylorus. When sphincterectomy cannot be performed (half of the cases) there are two resorts: One should either establish a better drainage of the stomach by a new and better gastro-enterostomy or make a prophylactic resection of the stomach. The first method exposes the patient to the dangers of gastro-enterostomy, that is to say the appearance of peptic ulcer after gastro-enterostomy in a patient with a predisposition to ulcers. Gastro-enterostomy alone can be considered only in old patients in whom peptic ulcer is rare. The second recourse is gastrectomy. To be preventive, gastric resection ought to be extended: (1) to two thirds of the stomach, if the gastro-intestinal continuity is reestablished by a terminolateral gastrojejunal anastomosis; (2) but only to one third (region of the pyloric glands) if the stomach and the duodenum can be reunited by a terminoterminal or terminolateral (Haberer) anastomosis. The author prefers extensive resection of the stomach because it has been followed by the fewest recurrences. In the surgical treatment of perforative peptic ulcer, the following procedures are considered: Excision of the ulcer, better drainage of the stomach, anatomic restoration, and frequently merely closure of the perforation. The operation can be done in two stages; namely, simple closure of the perforation and, several weeks afterward, anatomic restoration or prophylactic resection. In colic fistula, the best operation is the simple liberation of the fistulized organs, with, each time that it is possible, anatomic restoration. One-stage gastrectomies are, in the main, formidable interventions with a mortality that is not entirely justified by the late results.

## Journal d'Urologie Médicale et Chirurgicale, Paris

**32:** 201-296 (Sept.) 1931

Residual Nitrogen in Urinary Diseases. G. Basile.—p. 201.
*Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue. T. Katz.—p. 207.
*Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis. L. Sas.—p. 221.

**Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue.**—Katz asserts that hypertrophy of the prostate is a mechanical or dynamic obstacle to the evacuation of urine, that the bladder is the first to be affected by this difficulty, and that it combats the dysuric state and the increasing obstacle by hypertrophy of its musculature. When the hypertrophy becomes insufficient, the patient enters the period of the disease characterized by residual urine. An examination of 1,500 cases of hypertrophy of the prostate revealed that in 30, or 2 per cent, there was no residual urine and the renal function was not impaired. The conclusions were as follows: Intravenous pyelography in prostatic hypertrophy is advantageous. Operative procedures should not be postponed because the vesical residue is minimal. Various laboratory methods should be used in examination for renal function; in prostatic hypertrophy these examinations should not be limited to dysuria or pollakiuria phenomena. The general health of the patient and the condition of his cardiovascular system must also be considered in surgical intervention. The author plans to incorporate roentgenography of the seminal vesicles in relation to the ductus deferens and the ureters in a great number of cases of hypertrophy of the prostate without residue and to interpret the latter through anatomic researches in a large series of cadavers.

**Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis.**—Sas based his observations in Bacillus coli and streptococcus inflammation of the bladder on a consideration of the semeiology, cystoscopic picture, character of the infectious development, and finally the response to treatment. He found that colibacillary cystitis is a secondary infection, the primary source being the upper urinary tract; colibacillary cystitis is responsive to treatment. On the other hand, streptococcus and micrococcus cystitis is a primary infection and much more difficult to eradicate. When general and local treatment of a coccus cystitis did not avail, the author decided to substitute for the streptococcus and micrococcus flora a Bacillus coli flora; this made subsequent treatment much more efficacious. The reaction of the urine was of great importance in the process of transition. The following procedures were incorporated: Acidification of the urine was accomplished by diet and the administration, three or four times a day, of from 15 to 20 drops of diluted hydrochloric acid and 0.5 Gm. of methenamine. Local therapy consisted in lavage of the bladder with 3 per cent solution of hydrogen dioxide followed by instillation of 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. This was continued until the pseudomembrane covering the mucosa disappeared (controlled by the cystoscope). The removal of the pseudomembrane removed the collections of bacteria and urine that prevented the adjustment of the reaction and the action of therapeutic agents. Then followed the injection into the bladder of 10 cc. of a suspension of a twenty-four to forty-eight hour agar culture of Bacillus coli (one billion organisms). The process of acidification of the urine was continued, but the methenamine was entirely discontinued and the local therapy was discontinued for two or three days. Bacteriologic control of the flora governed any necessity for repetition of the injection of the bacterial suspension. When the flora has changed to a monobacterial infection, the acidifying process is discontinued and the usual treatment for colibacillary cystitis is instituted. Lavage of the bladder may or may not precede treatment. Treatment consists of preliminary lavage of the bladder with 0.05 per cent solution of potassium permanganate and instillations with 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. Once the infection has changed to a colibacillary cystitis, alkali treatment supplants the acidification. It is important to know that acidity of the urine favors the development of B. coli and alkalinity the development of the streptococcus. However, the author remarks that Bacillus proteus may grow equally well in a strongly alkaline or a markedly acid medium. Four case histories (three of chronic cystitis and one of acute hemorrhagic cystitis) are reviewed.

## Revue Française de Gynécologie et d'Obst., Paris

**26:** 465-520 (Sept.) 1931

Dysmenorrhea at Puberty. V. Riche.—p. 465.
*Lysate-Vaccines in Puerperal Infections and Abscess of Breast. P. Brocq and L. Duchon.—p. 483.
Biologic Diagnosis of Pregnancy by Animal Tests. R. Bouc.—p. 505.

**Lysate-Vaccines in Puerperal Infections and Abscess of Breast.**—In 1926, Duchon proved that Bacillus pyocyaneus in contact with many living pathogenic bacteria such as diphtheria, staphylococcus, streptococcus, pneumococcus and gonococcus demonstrated bactericidal, bacteriolytic and antitoxic properties. He and Brocq explain the phenomena that take place as a state of immunization, active vaccination with development of antibodies, manifested in the body as intense leukocytosis, phagocytosis, decrease or disappearance of the bacterial agents of the focus of infection and tinctorial and morphologic modification of the infecting pathogens. They utilized "lysate-vaccines" prepared by the filtration of cultures of the etiologic organisms grown in contact with pyocyaneus. They have reported elsewhere results in various surgical cases of phlegmons, abscess, lymphangitis and cellulitis as well as medical cases of bronchopneumonia and purulent pleural exudates due to streptococci. The authors report the treatment in eleven cases and the resultant improvement in nine cases of streptococcus septicemias. Thirty patients were treated for abscess and lymphangitis of the breast. Culture of closed abscesses gave pure cultures of hemolytic staphylococci while cultures of open abscesses gave mixed cultures of staphylococcus, streptococcus and other more or less pathogenic organisms, such as common skin pathogens, enterococcus and Bacillus pyocyaneus. The lysate of the staphylococcus was used for the treatment of the closed abscesses and the lysates of the staphylococcus and streptococcus were used for the treatment of the open abscess. The authors used mixed lysate-vaccines, especially in those types of diseases with particularly frequent secondary infections. Lymphangitis of the breast was frequently improved by the application of wet dressings. When lysate-vaccinotherapy was substituted, there was rapid improvement in four or five days. Their studies suggested that there may be a close relationship between uterine and general infection, and that the uterine flora should therefore be studied before labor and before obstetric intervention. Several instances of con-

comitant streptococcic infection of the ureter in the male led the authors to believe that sporadic streptococcus infection like gonococcus infection may be a result of sexual contamination. In streptococcus puerperal septicemias, the authors utilize the lysates of the streptococcus and also the polymicrobic lysates of the bronchopulmonary infections. They find, however, that immunity against streptococci is of short duration and insurance against recurrence is not always guaranteed.

## Revue Neurologique, Paris

**2:** 257-340 (Sept.) 1931

*Acute Optic Neuritis Associated with Myelitis. Milian, Lhermitte, Schaeffer and Horowitz.—p. 257.
Tonic Reflexes of Posture. O. Balduzzi.—p. 280.
Malarial Therapy and Cerebral Lesions in Dementia Paralytica. D. Paulian and I. Bistriceanu.—p. 293.

**Acute Myelitis with Optic Neuritis: Case.**—Milian and his co-workers summarize their case as follows: A man, aged 37, on presentation gave negative reactions to blood and spinal fluid tests and in the following days proved to have signs of paresis in the lower limbs and visual disturbances which appeared about the same time as the signs of paresis. Shortly after the onset, the patient presented a distinct spasmodic paraplegia with marked exaggeration of the reflexes and extension of the toes, accompanied by dystrophies in subjective and objective (tactile and deep) sensitivity ascending to the sixth and seventh thoracic nerves and sphincterial difficulties marked by impotence. The paraplegia was accompanied by an increase in the albumin content of the spinal fluid without appreciable hypertension. The visual difficulties consisted in a decrease in visual acuity with edematous papillitis accompanied by a central scotoma for colors. In spite of treatment, the paraplegia increased; the spastic manifestations and accentuation of the sensitivity were the two chief manifestations. Appearance of an ascending urinary infection was concomitant with the sphincterial dystrophies, complicated finally by visceral localizations, particularly pulmonary and renal, which led to death in from six to seven weeks after the onset. Anatomically, the essential, fundamental lesion was present in the spinal cord and consisted in areas of demyelinization accompanied by neuroglial reactions, and in the optic nerve there was degeneration and inflammation. The authors believe that the case represented an autonomic disease, probably due to a neurotropic virus, different from other diseases described in the past. This disease of the brain and spinal cord was elective for the spinal cord and optic nerves, differing from analogous syndromes such as may be produced by syphilis of the brain and spinal cord, multiple sclerosis, necrotic myelitis, epidemic encephalitis, and all the types of leuko-encephalitis. They do not agree with other workers that this disease is a syndrome.

## Giornale di Clinica Medica, Parma

**12:** 953-1038 (Sept. 20) 1931

*Pseudovalves of Heart. G. Dagnini.—p. 953.
Observations on Sudanophil Leukocytes. M. Gavazzeni and L. Beltrametti.—p. 995.
Organotherapy in Anemia. A. Lo Jacono.—p. 1007.

**Pseudovalves of Heart.**—Dagnini carried out an anatomopathologic study on the peculiar formations termed "pseudovalves of the heart," which are observed on the parietal endocardium of the left ventricle, with especial frequency in insufficiency of the aortic valves. From a critical examination of the literature on the subject and from researches in seven personal cases, he is convinced that the development of the pseudovalves is not controlled by a single factor but that they may originate from thickening of the tissues, inflammatory processes of the wall, or from a changed disposition of the muscles—of congenital origin, through the action of the aortic regurgitation in cases of insufficiency of the aortic valves, or through the exclusive mechanical action of the aortic regurgitation in the defect mentioned, a regurgitation which causes first circumscribed thickening of the tissues of the endocardium and secondly cavities in the form of pockets or pouches. This hypothesis finds support in the constant association with the aortic valvular defect, in the localization below the point of the maximal valvular defect, and in the histologic changes that are observed, indicating a repeated mechanical stimulus.

## Riforma Medica, Naples

**47:** 1470-1504 (Sept. 28) 1931

Angioneurotic Disturbances of Lower Limbs (Buerger's Disease). D. Giordano.—p. 1471.
*Differential Venosocapillary Glycemia in Diseases of Liver. A. Tarsitano.—p. 1474.
Conservation of Control Serums for Wassermann Test. G. Delpiano.—p. 1481.

**Differential Venosocapillary Glycemia in Diseases of Liver.**—In ten patients with diseases of the liver (three cases of Morgagni-Laënnec cirrhosis, one of cancer, two of syphilitic hepatomegalia, two of liver disorder due to cardiac stasis, one of hepatomegalia due to chronic malaria, and one of hepatomegalia with icterus and fever), Tarsitano studied the behavior of the capillary glycemic curve, the venous glycemic curve and the differential venosocapillary curve after oral administration of 1.5 Gm. of dextrose per kilogram of weight. According to the Falta method, he compared the values obtained for (1) glycemia fasting, (2) the degree of hyperglycemia in an absolute sense and relative to the glycemia fasting, (3) the degree and duration of the hypoglycemic phase when that occurs, and (4) the degree of differential venosocapillary glycemia—fasting and during the tolerance test. From the results obtained, it may be deduced that the differential glycemia is usually lower, the more grave the functional lesion that affects the liver, and that often when there is a low differential glycemia the hypoglycemic phase is absent. Since to these two characteristics the Falta school attributes the value as exponents of a deficiency of the insular function, it must be assumed that in grave liver disorders there exists this deficiency of functioning. The results obtained show the need of taking account of the hepatic factor whenever one applies the test of the differential venosocapillary glycemia with dextrose to determine the functioning of the pancreas.

## Semana Médica, Buenos Aires

**38:** 945-1028 (Sept. 24) 1931. Partial Index

*Bleeding Nasopharyngeal Fibroma of Puberal Period in Boys: Treatment. H. Zubizarreta.—p. 953.
Physiopathology of Pulmonary Circulation in Mitral Stenosis. R. Naveiro.—p. 957.
*Surgical Semeiology of Peripheral Nerves and Treatment of Cranial Trauma. M. Balado.—p. 982.
Traumatic Congenital Pemphigus with Epidermal Cysts. E. P. Fidanza, F. Carrillo and T. Ocaña.—p. 990.

**Bleeding Nasopharyngeal Fibroma of Puberal Period in Boys.**—Zubizarreta advises high voltage roentgen treatment for the special type of bleeding nasopharyngeal fibroma which occurs in some boys during puberty. In his patient, aged 15, a large tumor developed in the right nasal fossa and extended to the maxillary sinus, filling it entirely. The exact nature of the growth was proved by its characteristics (red color, hard consistency and other peculiarities), by the symptoms (especially profuse bleeding) and by a biopsy of the tumor. High voltage roentgen treatment caused the regression of the tumor till complete disappearance, and the results still persist seven years later.

**Surgical Semeiology of Peripheral Nerves and Treatment of Cranial Trauma.**—Balado describes the impairment of certain muscular functions, under nervous control, after trauma with injury of the spinal or cranial nerves or their roots. The condition of the nerves or nerve roots supplying the given muscle may be determined by the exploration of the functions of the muscles. In acute cranial trauma or fractures of the skull, the most important symptoms are those referred to the cerebral injuries. Cerebral edema, which is a constant occurrence in cranial trauma with injury of the cortex, is limited to the proximity of the traumatized area and may undergo a spontaneous regression if the injury of the cortex is minimal. However, if the injury involves laceration of the pia mater, cerebral edema spreads through the entire lobe of the traumatized side, and it spreads also through the entire hemisphere if there is coexistent hemorrhage. The condition determined by the hemorrhage may be more or less grave. The least serious intracranial hemorrhage is the subpial (nonfatal), caused by injury of the cortex by a splinter of the lamina interna, detached by trauma. Next in importance is the intradural hemorrhage caused by the detachment of a vein

at its site of insertion, due to concussion of the brain. In this type of trauma the vault of the skull may or may not have suffered a fracture. In the first case (with fracture of the vault) some cerebral substance is lost through the gap of the fracture. The prognosis for the life of the patient may be favorable if the development of meningitis can be prevented. In the last case of this type of trauma (without fracture of the vault), either the intradural hemorrhage acts as an internal tumor, rapidly causing intracranial hypertension and death of the patient, or it escapes into the orbital cavities through a communication of the skull (provided the concussion produced a slight crack at its base); the victim's life in this case is spared as under the action of a decompressive trephination. However, all these possibilities of saving the victim's life do not minimize in the least the seriousness of this type of hemorrhage. Next in importance is the intradural hemorrhage caused by the section of a branch of the sylvian artery by a cutting splinter. This type of hemorrhage, as well as rupture of the cavernous sinus following a radiating fracture of the base of the cranium is always fatal. The victim either rapidly dies or rapidly falls into coma and dies during the first twelve hours. In cases of craniocerebral trauma caused by a projectile, this acts as the traumatic and fracture-causing agent as well as the resecting agent whose principal damage is that caused by the section of the choroid plexuses which determines the profuse hemorrhage into the ventricles.

## Siglo Médico, Madrid

**88:** 249-272 (Sept. 12) 1931

Large Epithelioma of Limbus Corneae: Removal. M. Marín Amat.—p. 249.
*Asthma: Intrapulmonary Treatment by Epinephrine. F. Fernández Arratia.—p. 250.

**Intrapulmonary Treatment by Epinephrine in Asthma.**—García Vicente's method, a simple technic for intrapulmonary therapy, was described in the *Deutsche medizinische Wochenschrift* (**54:**1835 [Nov. 2] 1928; abstr. THE JOURNAL, Jan. 19, 1929, p. 273). Fernández Arratia used this technic for the intrapulmonary administration of an emulsion of epinephrine and iodized peptone for the treatment of asthma. The only contraindication is the presence of hypersensitiveness to iodine. The mixture for the injections is prepared thus: In a sterilized capsule, from 3 to 10 drops of a 1:1,000 solution of epinephrine, from 5 to 10 drops of iodized peptone (and sometimes from 5 to 10 drops of a 1 per cent solution of jaborandi) are mixed with from 2 to 4 cc. of the substance which is going to be used as a vehicle (such as aromatized oil or eucalyptol). The mixture is given in endobronchial injections, at a temperature of 38 C., either daily or every other day (about eight injections). In a large number of cases treated by the author, the treatment failed only once. In this case, desensitization, climatotherapy, and some other medical treatments also failed. The presence of some lesions of the organs of reproduction was proved in this patient, and sterilization by roentgen irradiations caused relief. The mixture of epinephrine, iodine and jaborandi seems to have an action on the mechanisms of sensitization, by paralyzing the vagus nerve and by stimulating the sympathetic nerves. Among the asthmatic patients observed by the author, tubercle bacilli were not found. The endobronchial treatment of asthma should be given during the intervals between the attacks. The author concludes that asthma is an allergic and anaphylactic disease. Desensitization should be resorted to, though it should be previously determined whether or not the patient has any other disease responsible for the causation of asthma. If so, he should be properly treated; one should remember that the allergens in asthma are represented by the products of the underlying disease. Roentgen rays, desensitization, and surgical and medical treatments, sometimes give good results, while at other times they fail. The technic of endobronchial treatment with epinephrine and iodized peptone is simple and the treatment gives good results. Any general physician may give the injections; anesthesia is not used. When the problems of desensitization are better understood, the combined treatment of desensitization and endobronchial therapy according to the author's method will offer the means of complete recovery in asthmatic patients.

## Archiv für Klinische Chirurgie, Berlin

**166:** 361-548 (Sept. 5) 1931

Intra-Abdominal Cysts. H. Danziger.—p. 361.
*Development and Treatment of Carbuncles. J. T. Huang.—p. 372.
Atresia Ani Urethralis. B. Parin.—p. 386.
*Reflex and Toxic Vascular Shock. N. A. Gurewitsch.—p. 401.
*Callus Formations on Tibia Without Fracture. L. J. Ollonqvist.—p. 412.
Clinical Significance of Congested Gallbladder and Dyskinetic Disturbances in Biliary Passages. I. M. Talman.—p. 425.
Histologic Changes in Epiphyseonecroses: Peculiar Form of Joint-Mouse Formation in Osteochondritis Deformans Juvenilis. G. Brandt and F. Klages.—p. 474.
Typical Injuries of Motorcycle Riders. H. R. Paas.—p. 500.
Practical Significance of Sport Injuries. O. Schmith.—p. 514.
Injection Treatment of Varicose Veins and Its Results. S. Hansen.—p. 527.
Genesis and Therapy of Onychogryposis. F. Kazda.—p. 542.
Gangrene of Finger Following Sting by Trachinus Draco (Sting Fish). F. Kazda.—p. 546.

**Treatment of Carbuncles.**—Huang describes the household remedies that many Chinese employ in the treatment of carbuncles. The author has tried the various methods of treatment that have been recommended in the medical literature of recent years. However, because many of the patients were already in a desolate state, he found that radical treatment was necessary and he resorted to radical excision in the healthy tissue, a procedure which Riedel advocated in 1891 and to which attention had been called in later years by other authors. The excision is done with ethyl chloride anesthesia. Ligation of veins is dispensed with, and a pressure bandage of iodoform gauze is applied. In the further treatment the author takes advantage of the modern methods of shock therapy. He employed this method in uncomplicated carbuncles as well as in carbuncles in diabetic patients. Of fifty-nine patients treated in this manner, two died; the death of one was the result of tetanus, and the other one had for years been subject to cardiac weakness. The diabetic patients all recovered from the carbuncle, and the healing was rapid. The author considers every carbuncle a sign of acidosis and he thinks that, in addition to the total excision, the administration of insulin or of insulin and carbohydrates should not be neglected.

**Reflex and Toxic Vascular Shock.**—In reviewing the literature on shock, Gurewitsch did not find definite statements on the essential changes in the vascular system in reflex shock; that is, he found no information on the types of vascular changes following stimulation of sensory nerves. In order to solve this problem he made experiments on dogs. On the basis of his observations and the results of other investigators, he classifies the disturbances that are combined under the term surgical (traumatic) shock into two main types: (1) the toxic vascular shock (anaphylactic, infectious, histamine and other forms) with a definite etiology, an exact localization and a clear pathologico-anatomic picture, and (2) the reflex shock, which has the character of a functional disturbance and in which the pathologico-anatomic changes are not clearly defined. According to the mass and type of the injured tissues, to the character and to the intensity of the irritation of the sensory nerve, there may develop either the toxic shock, the typical reflex shock, or a combination of the two types. The severity of the reflex shock is dependent on the condition of the organism and on the severity of the irritation. The irritation of the sensory nerve is accompanied by a marked increase in the blood pressure. After the irritation ceases, the blood pressure sinks below the normal and then gradually returns to normal. The sudden death following intense irritation of the peripheral nerves is not always caused by shock manifestations but may also be caused by changes in the organism which are connected with the abnormally increased blood pressure and which precede the reflex shock. The rapid increase in the blood pressure and the subsequent decrease should be taken into consideration in every surgical intervention on weakened and aged persons, in whom the blood vessels are brittle. The alveolar and the spermatic nerves are much more susceptible than many other sensory nerves and should therefore be treated with especial care.

**Callus Formations on Tibia Without Fracture.**—As a military physician, Ollonqvist observed a large number of soldiers who had a peculiar disorder of the tibia. He gives several case reports and also shows roentgenograms. All of

the patients were young (about 20 years) and otherwise healthy and of normal development. The pains developed either in one or in both of the tibias and became so severe that it was impossible to continue the military exercises. The pain is felt on the inner margin of the tibia and it is noticeable when the leg is active; that is, during walking and especially while running and jumping. During rest the painfulness disappears. Simultaneously with the development of the painfulness there also appears a swelling on the surface of the tibia. The skin covering the swollen portion is generally normal. The swelling is due to edema of the tibial periosteum. In the beginning it is so marked that, if the finger is pressed against the tibia, a pit remains. The swollen area is extremely sensitive to pressure. The edema is always limited to the surface of the tibia. The ankle joint and the foot are not swollen. The sensitiveness likewise involves only the bone, for the adjoining tendons and muscles are not painful. In the beginning, roentgenoscopy reveals normal conditions; but gradually, in the course of several weeks and months, newly formed periosteal bone appears, increases and becomes more compact. As the ossification process progresses, the edema, the hypersensitiveness and the pains disappear and there remains only a nonsensitive elevation. The cure is spontaneous, without any other treatment than rest; but, if the leg is overtaxed, relapses are liable to occur. The microscopic examination of specimens of the process, which were obtained by exploratory excision, revealed that the histologic structure was the same as that which is ordinarily found in callus formation. Although periostitis of the tibia is generally considered as of syphilitic origin, there were no signs of syphilitic infection in any of the patients in whom this peculiar callus formation was noted. In discussing the pathogenesis of the process the author expresses the opinion that it develops in a similar manner to the disorders that develop in the metatarsal bones after long and strenuous marching. The tibia is overtaxed and at the site of the severest pressure microscopic contusions develop, bone cells break down and hemorrhages set in. The periosteum reacts to these irritations in its usual manner; i. e., it commences to form new bone by way of callus formation.

## Deutsches Archiv für Klinische Medizin, Berlin

**171:** 333-430 (Sept. 4) 1931

*Clinical Significance of Chamber Count of Eosinophils. A. v. Domarus.—p. 333.
Does Magnesium Peroxide Counteract Hyperacidity? Z. Szilárd.—p. 359.
Metabolism of Blood Pigments. L. Heilmeyer and W. Oetzel.—p. 365.
*Distribution of Protein Bodies in Blood in Hemorrhagic Diatheses. R. Jürgens.—p. 378.
*Arteritis Obliterans (Thrombo-Angiitis Buerger) as Familial Disease. K. Mészáros.—p. 391.
Studies on Metabolism in Exophthalmic Goiter. E. Mohos and A. Scholtz.—p. 397.
Studies on Metabolism in Fructosuria. H. Steinitz.—p. 401.

**Significance of Chamber Count of Eosinophils.**—Domarus aims to show that the diagnostic evaluation of the number of leukocytes will be of greater practical value not merely if the counting is done on stained smears but if in addition to this the chamber count is done. He first reports the results of the chamber count of the eosinophils on healthy persons and then the characteristics of the eosinophil count in various diseases such as gastric ulcer, anemia, rheumatism, tuberculous meningitis, lymphogranuloma, carcinoma, echinococcus disease, cardiac insufficiency, certain forms of nephropathies, hypertension and poisoning. The chamber count of the eosinophils is more valuable if it is repeated from time to time. In the conclusion the author points out that, although it is as yet not possible to give a satisfactory biologic explanation for the behavior of the eosinophils in the various diseases, his investigations have nevertheless proved that the determination of the absolute number of eosinophils by means of the chamber count is in many disturbances a valuable addition to the diagnostic instrumentarium. He thinks that this method should be employed at the bedside whenever possible and that it is of equal significance with Schilling's hemogram method. Moreover, in some cases it reveals characteristic changes, not detectable by other methods. It cannot be denied that this method, like all others that are based on biologic processes, has some shortcomings, but the same can be said of the hemogram method. For this reason it would be wrong to overvalue the one at the expense of the other; but it is advisable to use both of them especially since in many cases they complement each other excellently.

**Distribution of Protein Bodies in Blood in Hemorrhagic Diatheses.**—Jürgens employed a combination of titrimetry and of Kjeldahl's method. He determined the total protein content of the plasma, albumin, globulin, fibrinogen and volume of the plasma; also the thrombosis time, coagulation time, agglutination and retraction. The studies were made on patients with essential thrombopenia, thrombasthenia, symptomatic thrombopenia, hemorrhagic diathesis during sepsis, hemophilia, scurvy, purpura rheumatica, aplastic anemia and fibrinopenia. For comparison, cases of pernicious anemia, secondary anemia, leukemia, nephritis, nephrosis, tuberculosis, pneumonia, acute infectious diseases, thrombosis and diseases of the liver were studied. Further, hemorrhagic diatheses were produced in animals by acute and chronic benzene poisoning and by lead poisoning, and the test animals were examined in the same manner as the patients. It was found that in hemorrhagic diathesis accompanied by thrombopenia the albumin is regularly increased. A considerable increase in albumin is also noted in rabbits with acute poisoning by benzene or lead. The increase in albumin goes parallel with certain hematologic changes of the hemorrhagic diatheses; namely, with thrombopenia, reduced platelet agglutination, prolonged bleeding time in spite of normal coagulation, and prolonged "thrombosis" time in the capillary thrombometer. Hemophilia, scurvy, thrombasthenia, purpura rheumatica, and hemorrhagic diathesis in sepsis show a normal condition of the blood protein. The author also calls attention to relations between increased albumin content and "hemorrhagic tendency" in thrombopenic hemorrhagic diatheses and to relations of globulin fibrinogen increase to "thrombosis tendency" in infectious conditions and in thrombosis.

**Arteritis Obliterans (Thrombo-Angiitis Buerger) as Familial Disease.**—Mészáros points out that the etiology of arteritis obliterans is not entirely clear as yet. Some assume an infectious cause, others a predisposition in certain races, and still others consider it a heredodegenerative manifestation. From the latter point of view it is especially interesting if the disease occurs in several members of the same family. The author reports an instance of a family in which eight members (of two generations) showed changes indicative of arteritis. The symptoms were especially severe in three of them.

## Deutsche Medizinische Wochenschrift, Leipzig

**57:** 1731-1768 (Oct. 9) 1931

Incipient Disease in Chronic Disorders. A. Fraenkel.—p. 1731.
Examination of Healthy Persons. A. Gottstein.—p. 1733.
Examination of Patients with Life Insurance on Basis of Experiences of German Life Insurance Companies. H. Doll.—p. 1735.
*Treatment of Retinitis Pigmentosa with Female Sex Hormone. F. Wibaut.—p. 1739.
Treatment of Rickets Without Use of Viosterol. B. Bleyer and F. Fischler.—p. 1741.
Sporadic Scurvy: Case. Arneth.—p. 1743.
*Practicability of Methylene Blue Test for Demonstration of Bilirubin. J. Seide and K. Zink.—p. 1744.
Gold Dermatitis Caused by Treatment with Gold Preparation. F. Koch.—p. 1745.
Diagnosis and Treatment of Hypernephroma. G. Bankow.—p. 1746.
Ambulatory Treatment of Surgical Disorders of Foot. O. Kleinschmidt.—p. 1747.
Suicide in Germany. H. Dornedden.—p. 1750.

**Treatment of Retinitis Pigmentosa with Female Sex Hormone.**—In the introduction, Wibaut points out that retinitis pigmentosa is much more frequent in men than in women. It usually sets in after puberty and progresses until, at the age of 40, the person is almost blind. Periods during which the process is nonprogressive are possible, but spontaneous recovery is unknown in this disease. The author thinks that the lesser predisposition of women may perhaps be due to hormones that are produced only in the female organism. On the basis of this hypothesis he attempted to influence retinitis pigmentosa by the administration of female sex hormones. Small doses were without effect. But when other investigators found female sex hormone helpful in thrombo-angiitis obliterans, which has certain aspects in common with retinitis pigmentosa, the author resumed the subcutaneous hormone therapy with larger doses. Of five cases treated in this manner, three showed considerable improvement, one slight improvement, and one extremely old case did not show improvement.

**Methylene Blue Test for Demonstration of Bilirubin.**—Following Franke's suggestion that methylene blue (methylthionine chloride, U. S. P.) is a suitable reagent for bilirubin, Seide and Zink employed in examinations of urines, besides the usual tincture of iodine test, also a methylene blue test. They wished to determine whether the positive reaction always indicates disease or involvement of the liver, and also whether the urines containing bilirubin always give the peculiar color reaction when methylene blue is added. To 5 cc. of urine, a 2:1,000 aqueous solution of methylene blue is added drop by drop. If bilirubin is present, the specimen becomes green as soon as a drop of the methylene blue solution is added. It remains green when more drops are added. But as soon as the number of drops stands in a certain ratio to the quantity of bilirubin contained in the urine, the color becomes bluish green and then dark blue. The number of drops necessary to effect a change from green to blue indicates the quantity of bilirubin. Two drops corresponds to 0.1 mg. of bilirubin. The authors designate as strongly positive urine specimens for which more than 10 drops is required to effect the change, weakly positive when from 2 to 10 drops is sufficient to produce the change in color; and if the typical blue color appears when the first drop is added, the reaction is negative. Strongly positive reactions were noted in diseases of the liver with icterus (catarrhal icterus, carcinoma or syphilis of the liver, and cirrhosis), and in stasis of the liver as the result of circulatory insufficiency. A weak positive reaction was obtained in pernicious anemia, lead poisoning, malaria, nephrolithiasis, cholecystitis, cholelithiasis, influenza and slight stasis of the liver. It was observed that the methylene blue test was much more sensitive than the tincture of iodine test, and a positive iodine test in case of a negative methylene blue test was never observed.

## Wiener klinische Wochenschrift, Vienna

**44:** 1209-1236 (Sept. 25) 1931

Resonance Principle of Nervous Activity. P. Weiss.—p. 1211.
*Treatment of Tuberculous Diabetic Patients. H. Kutschera-Aichbergen.—p. 1217.
Results of Somatic Treatment of Dementia Praecox. B. Aschner.—p. 1220.
Indirect Arsphenamine Action. R. Brandt.—p. 1225.
Rectoromanoscopy in Diagnosis of Tumors. G. Singer.—p. 1226.
Bronchial Carcinoma. R. Lenk.—p. 1228.
Symptomatology and Therapy of Acute and Chronic Prostatitis. H. Rubritius.—p. 1228.
Relations Between Diseases of Nose and of Lacrimal Passages. K. Kofler.—p. 1229.

**Treatment of Tuberculous Diabetic Patients.**—Proceeding from the assumption that the low resistance of diabetic persons to tuberculous infections is perhaps due to a reduction of the sugar consumption of the tissues, Kutschera-Aichbergen attempted in three cases of diabetes and of severe exudative tuberculosis to increase the sugar consumption. When large quantities of carbohydrates and the corresponding amounts of insulin were given, the tuberculosis lost its former malignancy and took an unusually mild course. These favorable experiences in patients in whom progressive tuberculosis concurs with severe diabetes favor a continuation of the therapeutic experiment with a diet that is rich in carbohydrates. Besides the dietetic treatment, collapse therapy should of course not be neglected; on the contrary, in diabetic patients it should be instituted earlier than is usually the case, because in these patients tuberculosis is usually more progressive than in other persons. The author also points out that in diabetic patients the tuberculosis is almost symptomless in the beginning and causes no other clinical disturbances than a reduction of the carbohydrate tolerance. But in spite of this deficiency of symptoms it is usually malignant, and when finally clinical symptoms such as fever become noticeable, the tuberculous process has already reached an advanced stage. The prognosis of the combined tuberculosis and diabetes can be improved if the tuberculous process as well as the metabolic disorder is early recognized and adequately treated from its incipience. Besides the improvement in the tuberculous process the author also noted an increased sugar tolerance. In spite of a greater carbohydrate intake the insulin requirements are now less than they were before, during the time when the patients' carbohydrate intake had been curtailed.

## Wiener Medizinische Wochenschrift, Vienna

**81:** 1389-1420 (Oct. 24) 1931

Allergic Diseases of Nose with Especial Consideration of Hay Fever. G. Hofer.—p. 1391.
Tumors of Testis. R. Paschkis.—p. 1393.
*Syphilis of Urinary Bladder. I. Jovanovitch.—p. 1398.
Clinical Aspects and Pathology of Primary and Secondary Atherosclerosis Pulmonalis with Consideration of Aneurysm of Pulmonary Artery. A. Posselt.—p. 1403.

**Syphilis of Urinary Bladder.**—According to Jovanovitch, syphilis of the bladder is not as rare as is commonly assumed. It is much more frequent than tuberculosis of the bladder, but it never develops during the primary stage of syphilis, appearing only after the syphilis has become constitutional, and it disappears again, together with the other manifestations of syphilis. First the blood vessels become involved and, since the vascularization of the bladder is most pronounced in the region of the trigon and of the fundus, it is here that vesical syphilis becomes first noticeable. Then the submucosa becomes affected, and only in the more advanced stage does the mucosa become involved. During this stage the vesical syphilis presents the aspects of an ulcerous cystitis with pyuria and hematuria. The fact that the submucosa becomes involved before the mucosa not only aids in differentiating syphilitic cystitis from an ordinary cystitis but also explains why in its beginning stages syphilis of the bladder is painless and does not have any distinctive symptoms, while the normal capacity of the bladder is not reduced. The diagnosis of vesical syphilis is often difficult. It can be based on cystoscopy and on the efficacy of antisyphilitic therapy. If the serologic tests for syphilis are positive, a lesion of the bladder may be considered syphilitic; yet a negative serologic reaction does not necessarily speak against the syphilitic character and other vesical disorders must be excluded before a definite diagnosis is made. In regard to the treatment, the author states that syphilis of the bladder yields only to antisyphilitic therapy. Antiseptic irrigations, electrotherapy and internal treatments are, especially during the beginning stage before the mucosa becomes involved, more harmful than curative, since they irritate the mucosa.

## Zeitschrift für Krebsforschung, Berlin

**34:** 313-418 (Sept. 11) 1931

*Analysis of Tumor Resistance: 1. Studies on Fermentation. N. Waterman.—p. 313.
Id.: 2. Relations Between Lipase Activation, Cytolytic Reaction and Autolysis. N. Waterman.—p. 327.
*Id.: 3. Increased Resistance by Use of Spleen Extracts. N. Waterman.—p. 333.
Experimental Production of Sarcoma in Rats. C. M. Bellows.—p. 348.
Sarcoma in Rats Following Action of External Factors. M. Askanazy.—p. 362.
Remarks on Increased Frequency of Cancer of Lungs. M. Lipschitz.—p. 376.
Diffuse Carcinomatous Lymphangitis of Peritoneum. B. P. Abramsohn.—p. 382.
Cancer Mortality of Pregnant Women and of Puerperas. S. Peller.—p. 394.
Symptomatology of Lymphangitis Carcinomatosa of Lungs and of Pleura. L. N. Goldmann.—p. 405.

**Analysis of Tumor Resistance: Studies on Fermentation.**—Waterman points out that investigations on the problems of fermentation are of greatest significance for cancer research, for the cancer cell is generally considered the product of fermentative degeneration. Glycolytic degeneration as well as proteolytic degeneration has already been investigated, and the author studies lipatic or fat-splitting processes of the cancer cell. He discusses the significance of the lipatic systems for cell action and cell form and states that the lipatic process represents the coordinated action of ferment and of activator. In the blood as well as in the tissues such an activator is present, and this activator is sensitive to oxidation and to reduction. The lipatic action is accelerated by oxidation and weakened by reduction. Accordingly it may be assumed that in the intracellular mechanism there is a connection between oxidation and lipatic processes. Activator substances can be extracted by various procedures from organs such as the spleen and the lymph nodes. The extract can be purified by segregating the lipatic activator from the substance sensitive to rays. The latter substance can be removed by adsorption.

**Tumor Resistance: Experimental Investigations on Increased Resistance by the Use of Spleen Extracts.**—In summarizing the results of these researches, Waterman states that resistance to tumors, although often doubted, really does exist and that it may be induced by the injection of certain substances. The resistance produced in this manner can be demonstrated on implanted tumors as well as on tar cancers. The substances that produce resistance are contained in extracts from the spleen and from the lymph nodes. The author admits that this method is still in its infancy and that the extracts still have to be improved, particularly as far as purity and concentration are concerned. Nevertheless, he considers his method of preparing them as a distinct progress. He then stresses once more the significance of his investigations on lipase, which were reported in the two preceding articles.

## Vrachebnoe Delo, Kharkov

**14:** 641-752 (July 31) 1931

*Nature and Treatment of Edema. E. A. Lovtskiy.—p. 647.
Pulmonary Diseases Simulating Tuberculosis. A. E. Rabukhina and R. Ya. Shlifer.—p. 656.
Etiotropic Treatment of Ulcer of Stomach and Duodenum. I. S. Rodova.—p. 659.
Clinical Aspect of Blood Transfusion: Statistics in U. S. S. R. V. N. Shamova.—p. 663.
Perforation in Gastric Ulcer. I. O. Shcherbina.—p. 669.
*Sympathicotonic Symptom of Upper Lip: A Factor in Increased Tonus of Sympatheticus of Neck. L. A. Shillnikova.—p. 671.
Seven Hundred Instances of Treatment of Chronic Diseases of Uterus: Method of Grammatikati. M. Romodanova.—p. 674.
Ferment Power of Blood in Congenital Syphilis of Nurslings. G. I. Landa and D. G. Tullbermana.—p. 679.

**Nature and Treatment of Edema.**—Lovtskiy discusses the various theories of nephritis and edema, and attacks the problem as a phase of colloid-chemical phenomena. In his early studies he found that when ammonium chloride was administered orally to help the sleep of persons with edema a diuresis resulted. Using fixed doses of ammonium chloride, he determined the free carbon dioxide and bicarbonate of the blood (van Slyke's method) and obtained the value for the alkali reserve. His observations were as follows: Ammonium chloride causes a fall in the alkali reserve of the blood, the acid-base balance shifting toward the acid side. The shift toward acidosis brings about swelling in the tissue colloids resulting in diuresis. Acidosis causes a dissociation of the bicarbonate buffer of the blood; at the same time there follows in the liver a synthesis of the ammonia group into urea with increased excretion of urea into the blood and urine. The sodium chloride content of the urine also increases absolutely and proportionately. Considered as colloid phenomena, the passage of the sodium ion is necessary; its hydropigenous rôle is due to the increase in oncotic or osmotic pressure of the proteins. The author believes that there is no edema without retention of the sodium ion and no dehydration without its elimination. Calcium chloride as well as ammonium chloride was administered in combination with merbaphen and resulted in some instances in greater diuresis. The author stresses the importance of the recognition of cardiac edema with noncardiac manifestations. He also stresses the importance of the consideration of metabolic factors in the study of decompensation of the heart.

**Sympathicotonic Symptom of Upper Lip.**—Shillnikova asserts that the sympathicotonic symptom of the upper lip (similar to Chvostek's sign) as well as the sympathicotonic anisocoria symptom are indicators of changes in tonicity of the cervical sympathetic nervous system. The integrity of the facial nerve is necessary for the symptoms to appear. In case of paralysis or paresis of the cervical system, the symptom of the upper lip does not appear. Anisocoria as a symptom appears more often than the upper lip symptom, and the latter more often than the symptom with asymmetrical sympathetic widening of the palpebral fissures. The symptom of the upper lip (found most often in tuberculosis of the lungs) is present in from 18 to 25 per cent, and the symptom of the asymmetrical palpebral fissure in from 10 to 13 per cent of tuberculous patients. The symptom of the upper lip is almost an exclusive factor in localized disorders of the cervical sympathetic nervous system but can also appear in generalized sympathicotonia. The author advises further research.

## Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

**75:** 5075-5190 (Oct. 10) 1931

Acute Stasis in Blood Vessels of Arm (Thrombosis par Effort). J. G. Remijnse.—p. 5078.
Chemotherapy in Cancer of Uterus. R. Korteweg.—p. 5084.
*Menstrual Disturbances as Affected by Hormones. H. van der Hoeven.—p. 5087.
Carriers of Diphtheria Bacilli. K. S. Nanninga.—p. 5104.
Mineral Metabolism in Animal Organism: II. Copper. E. Sluiter.—p. 5106.

**Menstrual Disturbances as Affected by Hormones.**—Van der Hoeven aims to throw light on the physiology and pathology of the menstrual cycle. He is aware that his theories are based on many hypotheses not fully established, but the success of his treatment has induced him to publish this preliminary report of his experiences. In his treatment of the various disorders of menstruation, he proceeds on the supposition that the wrong functioning of one or more endocrine glands is the cause. When a woman suffers from scantiness of the menstrual discharge, it may be due to underfunctioning of the thyroid. Overfunctioning of the suprarenals may likewise play a part. The hypophysis, owing to impairment, may produce too little prolan B, and, finally, the ovaries may be impaired. In some cases the disorder may be traceable to an abnormal functioning of all these four glands. In choosing the form of treatment, one will often find it difficult to decide what particular gland is involved in a given case. The author follows this method: If the menses are too profuse and the thyroid is enlarged, he prescribes epinephrine. Nearly always this medication is more or less successful. If, however, the loss of blood following the administration of epinephrine is increased, the blood flow without doubt is not menstrual but due to follicular bleeding. In that case, thyroid must be given. If, on the other hand, the thyroid is enlarged, there is strong likelihood of a disorder of the hypophysis and possibly also of the ovaries, and the treatment must be changed in that direction. If the blood flow is scanty (when the thyroid is not palpable) thyroid tablets should be prescribed. If, however, the thyroid is normal or too large, epinephrine must be administered; for the scanty blood flow is due to the fact that a partially mature ovum has been discharged, with the result that the quantity of lutein formed is too small and the blood flow too scanty. A discharge that contains many blood clots may be an indication of a follicular bleeding, but it may also be due to the fact that, owing to the scanty lutein formation, too little of the coagulation-preventing ferment is formed, especially since, during the menstruation, there is a reduced sympathicotonia. Thus, in this last case, thyroid tablets must first be given, in order to stimulate the formation of prolan B, and later, during menstruation, epinephrine in order to enhance the sympathicotonia. When the patient reports, after a few months, on the effects of the tentative treatment, the author is able to form a much more exact opinion as to the cause of the disorder. He then establishes a new diagnosis. In this manner, with the cooperation of the patient, good results can usually be secured.

## Hospitalstidende, Copenhagen

**74:** 911-938 (Sept. 10) 1931

*Pernicious-Like Anemia of Pregnancy. Conc'n. V. Aalkjœr.—p. 918.
Pirquet Tests in Ejde Medical District in Faroe Islands. R. K. Rasmussen.—p. 926.

**Pernicious-Like Anemia of Pregnancy.**—Aalkjœr cites from the literature thirty certain cases of pernicious-like anemia of pregnancy. He reports a personal case, in which liver treatment together with blood transfusion was followed by an immediate rise in blood values with the pregnancy uninterrupted, and compares the reticulocyte reaction in this case with the one that occurs in the treatment of true pernicious anemia. The few cases with liver treatment during pregnancy which have been reported to date are discussed.

**74:** 939-950 (Sept. 17) 1931

*New Strain of Chicken Leukosis. J. Engelbreth-Holm.—p. 941.

**New Strain of Chicken Leukosis.**—Engelbreth-Holm reports on the first ten "generations" of a strain of transmissible chicken leukosis distinguished from other strains by a short incubation period (down to one week) after the first few passages,

by being effective after the seventh generation in 100 per cent of the cases, and by consisting exclusively of erythroleukosis cases except for the first generation, with long incubation period, which consists of two mixed myeloid-erythroleukotic cases. Subcutaneous as well as intramuscular inoculation is effective. He is inclined to agree with Furth that the so-called lymphatic leukosis in chickens is not connected with chicken leukosis. The two other forms, erythroleukosis and myeloid leukosis, may be regarded as early and as late manifestations, respectively, of the same pathologic process.

## Hygiea, Stockholm

**93:** 689-736 (Sept. 30) 1931

Intracapsular Cataract Extraction. F. Kugelberg.—p. 689.
*Parathyroids and Calcium Metabolism in Organism. E. Ask-Upmark. —p. 704.

**Parathyroids and Calcium Metabolism in Organism.**—Ask-Upmark states that, in sixty-three out of ninety-two cases of parathyroid enlargement from the literature or from personal observation, there were diseases of the bones, forty-eight of the cases being instances of osteitis fibrosa generalisata. The parathyroid enlargement, practically always present in this disease, is probably to be regarded as a toxic adenoma primary to the disturbance in the bones and in the mineral metabolism. In the differential diagnosis of osteitis fibrosa generalisata, exploratory operation on the parathyroids should be done if necessary; and palpation of the neck, and particularly determination of the blood calcium are advised in all cases of more generalized involvement of the bones. Removal of the parathyroid adenoma (Mandl) has been done, with improvement in sixteen cases.

## Norsk Magasin for Lægevidenskapen, Oslo

**92:** 677-788 (July) 1931

*Mineral Metabolism in Pregnancy. K. U. and G. Toverud.—p. 677.
*Exposure to Tuberculosis and Tuberculosis Infection in Childhood. H. J. Ustvedt.—p. 696.
*"New" Muscular Tumor: Case of "Myoblast Myoma." O. Berner.—p. 706.
*Case of Keratoconjunctivitis from Acne Rosacea. A. Mohn.—p. 709.
*Two Cases of Purulent Infection with Bacillus Influenzae Pfeiffer. E. Waaler.—p. 715.
*Case of Peculiar Perforation of Esophagus. P. Treider.—p. 721.
Crossed Plate Suture in Median Laparotomies. S. Høyer.—p. 724.
Crossed Plate Suture in Fracture of Patella and Similar Fractures. S. Høyer.—p. 728.

**Mineral Metabolism in Pregnancy.**—The Toveruds state that the negative calcium and phosphorus balance established by them three years ago in a number of primiparas in the last half of pregnancy seems to occur frequently but disappears after regulation of diet according to the recognized principles for a normal calcium and phosphorus metabolism. The negative calcium and phosphorus balance is experimentally proved to play a decisive part in the bone composition in the new-born, whether the diet deficiency is in vitamins, in the mineral salts calcium and phosphorus, or in both. To what extent pronounced rickets or osteoporosis with slight rachitic symptoms will be more marked in the child will then depend on the nature of the postnatal diet with regard to the important factors for calcification, unless the postnatal diet is so ideally balanced as to repair the inborn deficiency.

**Exposure to Tuberculosis and Tuberculosis Infection in Childhood.**—Ustvedt concludes from his investigation in Trondheim that even in the first years of school life the infection of Pirquet-positive children in cities occurs mainly outside of house and home. In Oslo as in Trondheim only about one fourth of the children between the ages of 7 and 15 are infected, although it is most likely that all children, at least after the age of 7, have been exposed to infection. This may point to unknown factors active in the threatened organism and temporarily able to prevent infection.

**"New" Muscular Tumor: Case of "Myoblast Myoma."**—Berner believes that he has lately seen, in a small specimen from the tongue of a young man, an instance of the tumor type described by Abrikossoff. The tumor has an organoid appearance, the connective tissue regularly inclosing the elements, so that pictures are seen which are strongly reminiscent of an alveolar sarcoma. Possibly because of this organoid characteristic, the tumor has no especial tendency to recur, in spite of the apparently marked "immaturity" of the cells. As far as the author knows, metastases have not been described.

**Case of Keratoconjunctivitis from Acne Rosacea.**—Mohn's patient had had acne rosacea for fifteen years and frequently recurring irritation of the eyes for nine or ten years, with intense rubor in the conjunctiva, without severe pain. A violent rosacea keratoconjunctivitis then set in, with ulcerations advancing to the center. Nonspecific protein therapy was instituted with sterile milk given intramuscularly, 1 cc. the first day, 3 cc. the next, increasing to 5 cc. every other day for a week, then every third or fourth day; in all, seven injections in two weeks. Local treatment of the eyes with resorcinol solution was given, together with treatment of the seborrhea and acne rosacea. Recovery followed.

**Purulent Infection with Bacillus Influenzae Pfeiffer.**—Waaler's first case was in an infant, aged 20 months, with cold and fever followed by painful swelling of the knee joint and symptoms of meningitis; death occurred after one month. A pure culture of Bacillus Pfeiffer was found in pus from the knee joint and also in the blood. In the second instance, in a man with chronic disease of the maxillary, sphenoid and ethmoid sinuses of fifteen years' duration, B. Pfeiffer in a practically pure state was isolated from the nasopharyngeal discharge. Both strains showed a typical growth of B. influenzae. The first strain gave complement fixation in the serum down to a dose of 0.0125 cc.; the other, down to a dose of 0.05 cc.

**Perforation of Esophagus.**—Necropsy in Treider's case revealed a slit, 7 cm. long, in the mucous membrane of the esophagus, presumably due to the sharp edge of a prune pit which had lodged in the patient's esophageal stricture and been forced through the membrane by the pressure of the rather stiff sound used by the patient.

## Ugeskrift for Læger, Copenhagen

**93:** 887-914 (Sept. 4) 1931

*Death Following Ambulant Lumbar Puncture. H. Boas.—p. 887.
International Society Against Tuberculosis. K. Faber.—p. 887.

**Death Following Lumbar Puncture.**—Boas states that death in his case was due to sepsis resulting from a phlegmon caused by the lumbar puncture. The need for careful antisepsis in ambulant lumbar puncture is emphasized.

**93:** 915-936 (Sept. 10) 1931

Dangers in Deep-Sea Diving. E. W. Johannsen.—p. 915.
Clinical Aspect of Obesity. A. Faber.—p. 918.
*Nupercaine Anesthesia Based on First Fifty Cases. E. Thomsen.—p. 922.
*Case of Death During Nupercaine Anesthesia. P. Kühnel.—p. 924.
*Case of Acute Nupercaine Intoxication. S. With.—p. 925.
*Some Cases of Silicosis Among Women Employed in Manufacture of Abrasive Powder. S. V. Gudjonsson.—p. 926.

**Nupercaine Anesthesia Based on First Fifty Cases.**—Thomsen used a 1:1,000 solution of nupercaine as a local anesthetic in various major and minor operations. Epinephrine was not added. He considers nupercaine an excellent local anesthetic in most cases. An instance of grave intoxication following the application of nupercaine points to the need of considerable care in its use.

**Death During Nupercaine Anesthesia.**—In Kühnel's patient, a girl aged 16, with Little's disease, spasms set in shortly after the injection of a dose of nupercaine well under the maximum according to the literature, and death occurred one hour after the start of injection. The case is regarded as a warning to use general anesthesia as far as possible in operations on patients with Little's disease.

**Acute Nupercaine Intoxication.**—In With's patient with exophthalmic goiter, the subcutaneous injection of 35 mg. of nupercaine in Heidenhain's anesthesia was followed by violent intoxication. Intradural injection was excluded, and the result is ascribed to the intravenous injection of 10 mg. of nupercaine at the most. Care is urged in deep injections in regions where there are chances of a partial intravenous injection.

**Silicosis Among Women Employed in Manufacture of Abrasive Powder.**—Gudjonsson reports six fatal cases of silicosis among women working for years, under primitive conditions, in the manufacture of scouring powder. Of the two survivors, one has marked silicosis; in the other, employed for five or six years, silicosis is not yet clinically demonstrable.